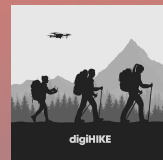




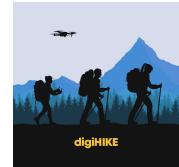
Erasmus+



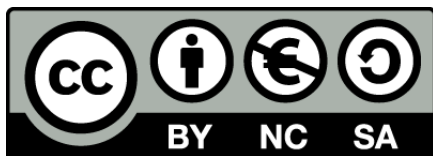
# Youth hiking in the digital age



Co-funded by the  
Erasmus+ Programme  
of the European Union



This publication has been funded with support from the European Commission. This publication reflects the views only of the authors, and the Commission cannot be held responsible for any use which may be made of the information contained therein.



This document has been developed and distributed in 2021 by *Youth hiking in the digital age* Project Consortium under an Attribution-Non-Commercial-ShareAlike Creative Commons license (CC BY-NC-SA).

This license allows you to remix, tweak, and build upon this work non-commercially, as long as you give appropriate credit, and license your new creations under the identical terms.

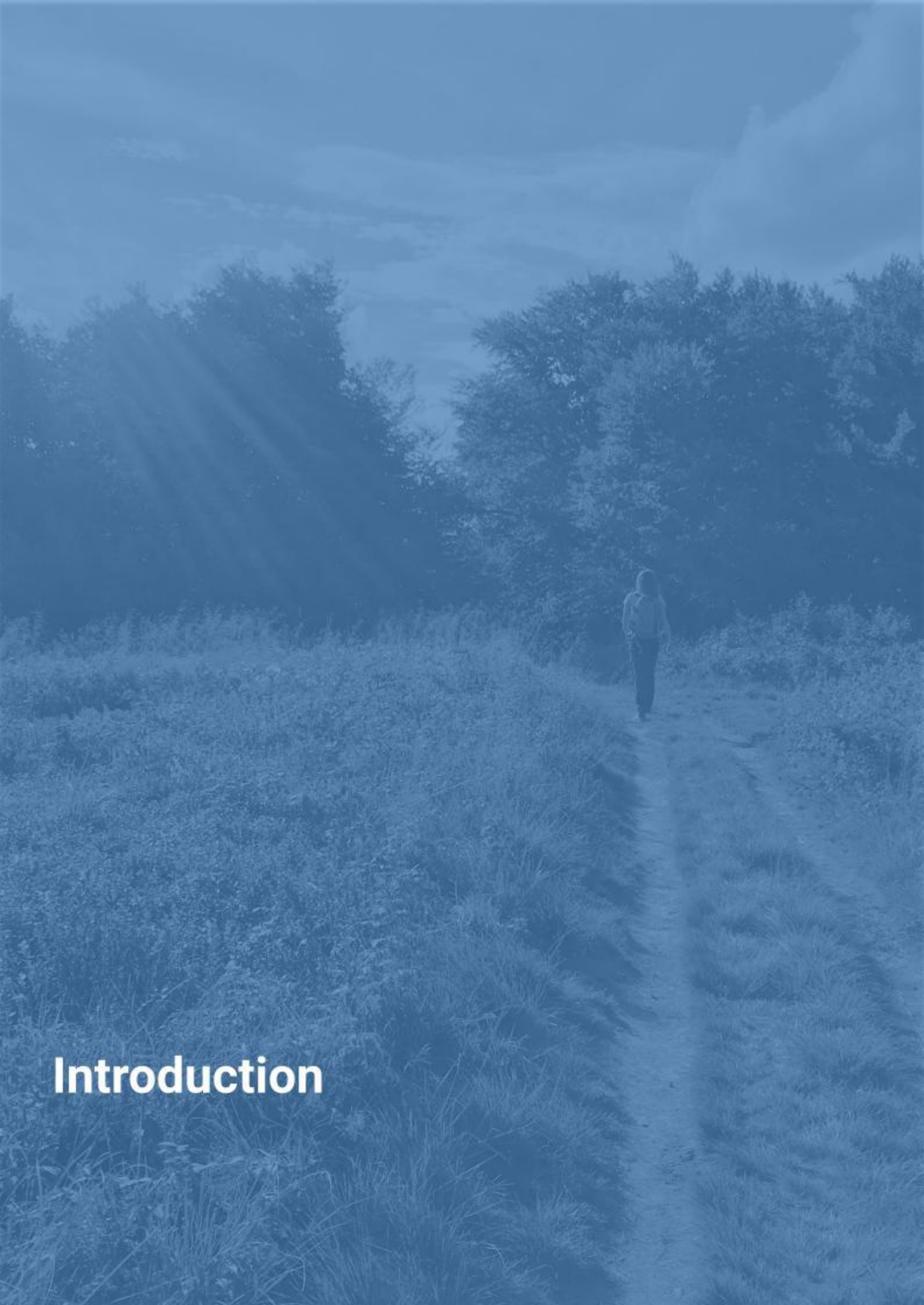
All the links in the publication were verified as active in June 2021



## Table of contents:

|   |           |
|---|-----------|
| <b>Introduction</b>                       | <b>4</b>  |
| <b>Chapter One: Digital mapping</b>       | <b>10</b> |
| <b>Chapter Two: Aerial Photography</b>    | <b>28</b> |
| <b>Chapter Three: Mountain filmmaking</b> | <b>45</b> |
| <b>Resources and tools</b>                | <b>68</b> |





# Introduction





## Introduction

Hiking, especially in the environments of natural beauty and cultural significance, is a valuable form of free time activity, raising curiosity of the world, offering new encounters and promoting healthy lifestyle. Regrettably, such experience is shared by relatively small numbers of young people. This publication aims at fostering more interest in such activities. We believe that young people's engagement in the digital world can provide a pathway to attract them to outdoor explorations as this is the area of almost universal appeal among youth.

This publication was developed in the framework of an Erasmus+ project in the Youth field entitled Youth Hiking in the Digital Age (2019-1-PL01-KA205-062626). The project began as a joint initiative of two organisations from Wadowice, Poland - Education Centre EST and a local community centre Wadowickie Centrum Kultury. WCK opened its premises for workshops organised by EST and addressed to young people interested in digital technologies. One such workshop was run in parallel to the Traveller Club, with young participants moving from one room to another not to miss any of the occasions. This is how we realised that the digital and touristic are a continuity of youth genuine interests and it is worth developing a new programme of activities bridging these two sides. A rucksack and a smartphone - this is the way young people hike, and this way opens venues for new explorations and learning. We thus started looking for partners who would help us give a wider dimension to the initiative. The Carpathian Arc emerged as a meaningful range of localities to explore. We know our part of the mountains very well and were happy to guide young people from other countries through the trails in our region. On the other hand we were curious to explore Carpathian trails in other countries. We thus searched through various sites and networks, asked our colleagues from previous projects to recommend relevant and reliable organisations to build this partnership. That's how the project developed to engage a Slovak youth organisation from Bratislava (ADEL) and a tourist organisation from Romania (EKE).

In order to ensure that the planned activities are relevant to the young people's actual interests we conducted a small-scale survey of prospective participants in each partner's country. We focused on the young people old enough to engage in outdoor activities with friends, without their parents' supervision (18 +). We asked them the following questions:



- ❖ How often do you go hiking in the mountains?
- ❖ Would you like to learn how to film mountain ranges from a drone, make digital maps of selected trails and illustrate them with photos?
- ❖ Have you hiked on Carpathian trails in the neighbouring countries?
- ❖ Do you think there is a cultural continuity along the Carpathian Arc linking Poland, Slovakia and Romania? If so, can you provide examples of such features (traditions, festivals, architecture, etc.)?
- ❖ Would you like to explore some of these locations with peers from the neighbouring countries and document your insights in maps, films and photos?

We can only briefly summarise the results of the survey here. We found out that there were no substantial differences between the feedback from the three countries, where only around 20% of respondents reported some hiking experience. The prospect of learning how to make digital maps, aerial photos and mountain films was received very positively by the majority of the young people, with drones attracting most interest. Not surprisingly, none of the surveyed people had any hiking experience on mountain trails in the neighbouring countries and only a small percentage had some basic knowledge of other Carpathian regions and cultures. Most importantly, the majority declared that they would go on a mountain trip to undertake mapping, filming and photography tasks if offered such an opportunity.

The above findings opened a space for our initiative which aims at tapping into young people's interest in digital technology to foster their engagement in outdoor exploratory activities. We translated this overall objective into more specific steps over the two-year project in which we planned to:

- ❖ Organise workshops on aerial photography, filmmaking and digital mapping that take the participants from their screens to explorations of the countryside
- ❖ Identify trails leading through sites of cultural and natural interest in the Carpathian ranges where we are based
- ❖ Involve young participants in hiking together on selected trails and sharing the coverage of their expeditions through photos, films and illustrated maps
- ❖ Facilitate intercultural encounters of the young participants across the partnership through online and onsite exchange
- ❖ Build a wider youth network around shared interests in digital technology and hiking on the foundation laid during these first encounters

The best experiences from this project are related in this publication in which we present some of the exploratory learning pathways that we followed.



**Chapter One** is an introduction to digital mapping and navigation written on the basis of mountain trips with young people in the Carpathians. It covers the following themes:

- ❖ Which types of maps to use for mountain hiking?
- ❖ What criteria help to choose relevant smartphone apps for hiking in the Carpathian Arc in Poland, Slovakia and Romania?
- ❖ How to use specific functionalities for mountain hiking (e.g. compass navigation in the terrain, recording trails, tracking routes taken by friends, measuring distances and elevation, marking waypoints)?
- ❖ What other smartphone apps can facilitate a safe experience in the mountains (e.g. survival or weather apps)?
- ❖ How to make the mountain hiking experience more fun and interactive?

**Chapter Two** deals with aerial photography and guides potential facilitators of photography workshops for young people through the following issues:

- ❖ How to choose a drone with sufficient parameters for hobbyist mountain filming and photography?
- ❖ What safety and legal precautions have to be taken to organise outdoor aerial filming sessions?
- ❖ How to organise introductory indoor workshops and outdoor activities?
- ❖ How to shoot aerial videos/photos on a mountain hike?

**Chapter Three** provides an introduction to mountain filmmaking and a guide for youth workers on how to motivate participants of outdoor activities to raise their basic video making skills. The following points are considered:

- ❖ How to develop a concept of a video narrative?
- ❖ Which shooting techniques to apply with the available tools?
- ❖ How to put the different shots together to create a film?
- ❖ How to share the films with other hikers?

Before we proceed to the main chapters of the publication which resulted from this cooperation we would like to briefly present the project partners who developed it.

The project involved three organisations from Poland, Slovakia and Romania in this new initiative in all our organisations. Transnational cooperation was an inherent part of the project seeking to encourage interest in explorations of these three neighbouring countries and their natural and cultural riches. We are all different and represent different sectors (foundation with educational aims, touristic organisation and youth centre), still for the success of the project all this versatile experience was helpful.





### Education Centre EST - Wadowice, Poland - Project coordinator

EST is an educational establishment with long-term experience in EU programmes, including Erasmus+ Youth Action. We have organised mobility events for young people as well as participated in many projects dealing with intercultural issues. Some had a lighter tone and explored intercultural differences in mundane, common interactions while visiting other countries or hosting guests from abroad. The digiHIKE project is a continuation of this experience, now venturing into mountain hiking.

EST has run a number of projects in the field of digital education which made us confident to undertake new tasks in this project (drone photography, digital maps). When it comes to cultural heritage we coordinated a youth project (Youth Venture ARTISAN) specifically dealing with wood renovation. Planning explorations of cultural heritage on the Carpathian trails we mean in particular wooden architecture of Podhale, the Poloniny and Harghita, the regions which give our participants unique opportunities for direct acquaintance with historic sites not yet seen.

### EKE - Cluj-Napoca, Romania

The Society has 16 branches all over Transylvania devoted to promoting the values of nature and cultural heritage in the region as well as ecotourism and youth work in these fields. It is the biggest touristic organisation in Romania with a vast potential in this sector. They have a lot to offer in terms of facilities (accommodation for tourists) and experience in guiding mountain tours, organising youth camps and exploratory learning initiatives. The regular activities include mountain trips, ski camps, contests, tourist guiding, touristic sign marking, performance tours and orientation races. These trips are organised by the members of the association from different Romanian municipalities, some sponsored by local funds. The biggest event organised each year is a summer camp gathering tourists mainly from Transylvania and Hungary beneath a huge “tent”.

EKE joined the project as a newcomer to Erasmus+, but with a genuine interest in the programme as opening new perspectives beyond Romanian-Hungarian cooperation - the association gathers many Hungarians living in Romania hence it has natural links with this bordering country.

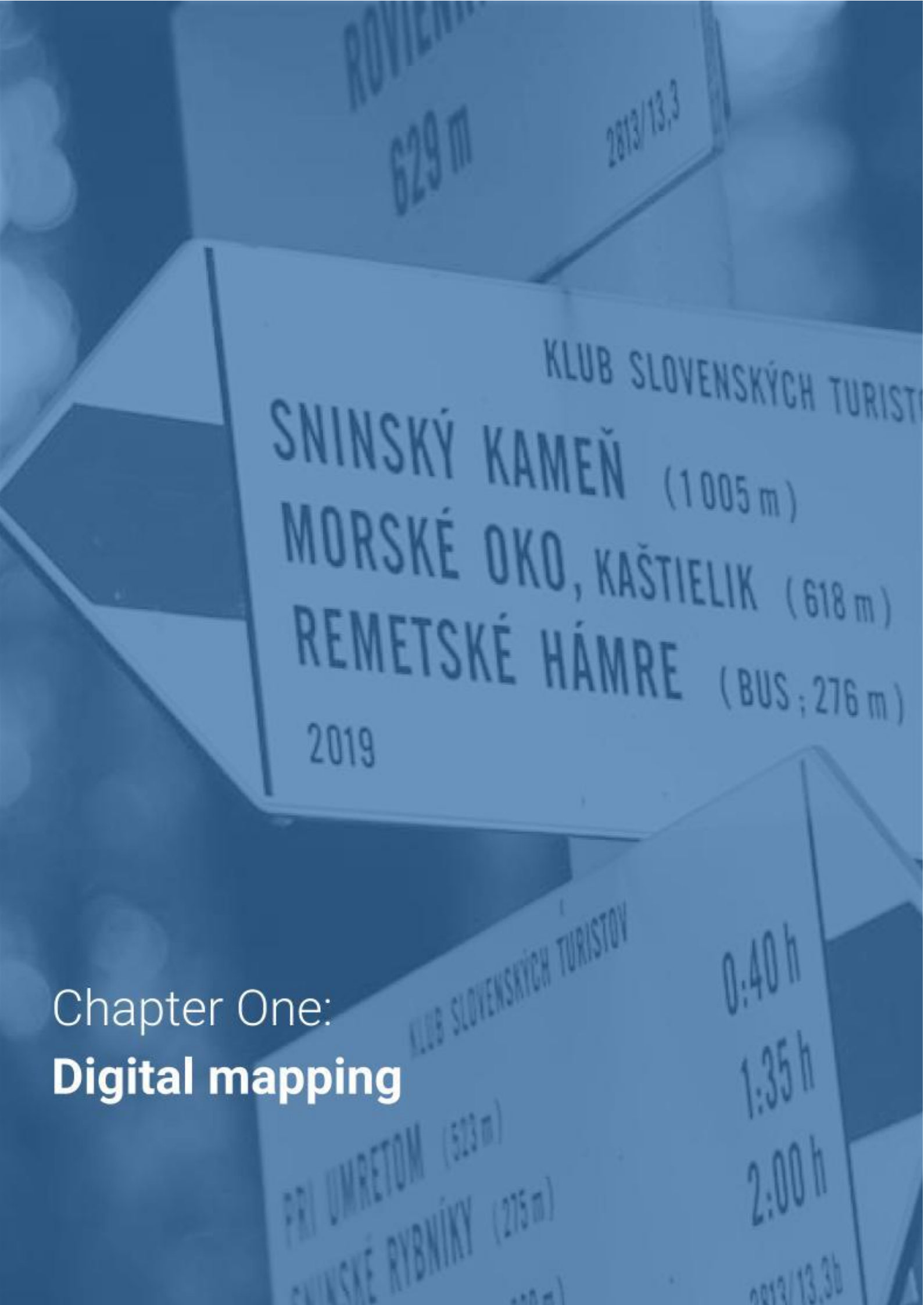


## ADEL - Bratislava, Slovakia

ADEL is a youth centre that creates opportunities for young people who would like to be active, try and learn something new and gain new experience and knowledge for personal as well as professional development. This is done through workshops, discussions with influential figures, sport competitions, cultural events and art contests. ADEL's experience in facilitation of transnational youth exchanges in the framework of Erasmus+ is an invaluable asset for our project which involves hiking together in international groups of young people from the three countries of our partnership.

ADEL has a base in Stropkov in the Poloniny region, very attractive to us as a melting pot of Polish, Slovak and Ukrainian influences. The projects that they have implemented in the field of environmental awareness and sport (e.g. Healthy Nature, WAVE on WAVE – Water sports for young people's physical activity, WinterSport is Coming) are complementary to our current initiative.

The partnership gathered a wealth of experiences in engaging young people in outdoor exploratory activities with digital tools. We believe that these experiences have the potential to influence other youth workers to launch similar initiatives and thus extend the project impact beyond the direct group of its participants. With this in view, we distilled the best from the workshop scenarios and approaches tested by us to present them in this publication.



## Chapter One: **Digital mapping**





## Chapter One: Digital mapping

Digital mapping (also called digital cartography) is the process by which a collection of data is compiled and formatted into a virtual image. The primary function of this technology is to produce maps that give accurate representations of a particular area, detailing major road arteries and other points of interest.

Plenty of maps and mobile applications can be used during the mountain hiking and makes it easier and more interactive. First, we would like to emphasize that the aim of this chapter is not to provide an extensive description of all of them, but we have rather selected those that are mostly used, the best evaluated by users and free/ or for a very affordable price at the time of finalising this chapter (May 2021).

Technology and new applications develop very quickly. However, the apps below can serve as examples of features that are available and you can always search for some others that suit you more. The following chapter was prepared by the Slovak partner organization – ADEL Slovakia with contributions of the participants of our first mobility focused on digital mapping and applications. Therefore, we have selected together a few apps that can be useful for your future hiking adventures!





## Which types of maps to use for mountain hiking?

There are plenty of maps applications available to be used. We have selected a few examples:

### Alltrails (Android and iOS)



The [AllTrails App](#) allows you to follow other users' maps and record your outdoor adventures. In addition, there are various other features and you can:

- ❖ view your hiking, running and cycling statistics at a glance
- ❖ share your hiking, running and mountain biking activities
- ❖ filter by dog friendly, kid friendly, and wheelchair friendly walking trails
- ❖ save your favorite trails

Premium account (2,50 €/month with 1 year subscription) allows you:

- ❖ to download offline maps, get notification when you get off-route
- ❖ to assign safety contacts who know your plan and can track you
- ❖ to know what to expect with real-time map that overlays with weather or air quality
- ❖ to remove the distraction of ads

The application has 4,5 users point out of 5 in Google Play Store and 4,9 points out of 5 in App store.



### Wikiloc (Android and iOS)



There are 2 versions of [the application](#). The free version allows users to record their own routes on a map, add waypoints, upload pictures to the itinerary or download offline maps. If you would like to follow trails of other users and use other features like live tracking or use advanced filters, you can buy a premium account (9,99 € and for 3 months 4,99 €).

The application has 4,3 users points out of 5 in Google Play store and 4,6 points out of 5 in App store.

### Komoot – Cycling & Hiking Maps (Android and iOS)



[Komoot](#), besides standard functions like planning the trips, recording own trails, offline availability, and the possibility to add pictures to your trails, it allows you to also turn voice navigation, follow other users and browse highlighted favorite places of the Komoot community's favorite places. However, there is only the first region for free, afterwards, one more region costs 3,99 € and the whole world costs 29,99 €.

The application has 4,5 users point out of 5 in Google Play store and 4,7 point out of 5 in App Store.

Besides those internationally used maps, there are also some regional apps that can be used in the Carpathian mountains. In Slovakia for example, [Hiking Slovakia](#) and [Mapy.Cz](#) are very popular, in Poland for example [Mapa turystyczna](#). For traffic while driving to your starting point of the hike, you can use Google Maps or offline app [TomTom Go Navigation](#).





## How to use specific functionalities for mountain hiking?

The app which proved most useful in our digiHIKE trips was Wikiloc. It was most commonly used by our participants who created a number of maps of their trails, illustrated and annotated them to show some interesting spots on the way and share the insights with others. We thus take it as an example to present the key functionalities of digital maps which are also available in other similar applications.

Wikiloc has a number of [excellent tutorials](#) which can facilitate using the tool for mountain hiking. It's worth consulting these resources at each point when you encounter any difficulties or need support to activate more advanced features. In what follows, we just present a resume of the key steps which should let you get started and map your hike.

### Installing the app

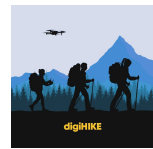
[Wikiloc](#) is focused on iOS and Android devices. Both versions can be downloaded from the Google Play Store and App Store. They intend to include more platforms in the future. Don't get discouraged when you get an error note indicating that "file is not valid" while updating the App from Google Play. To fix the problem, go to Apps in Google Play Services, clear the cache and the data and restart your device.

Wikiloc works best on a phone. Although it isn't exactly thought out to be used on tablets, it still works on most devices: on 7" Android devices the usability is very good and on an iPad, it works with a "compatibility mode" when extending the screen.

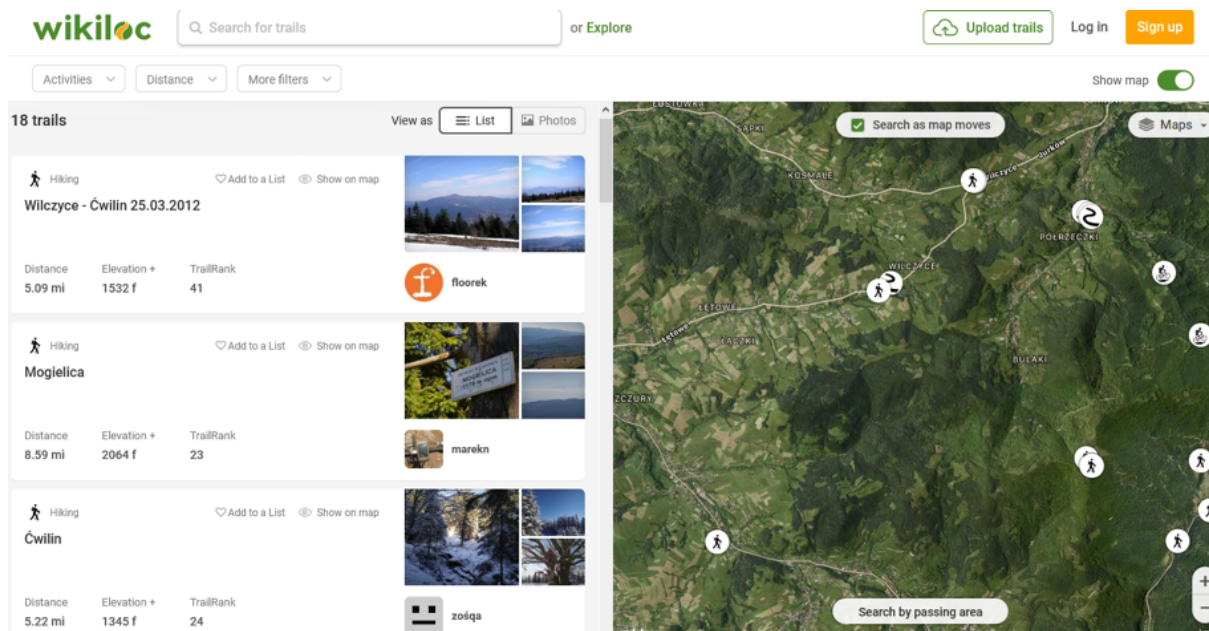
### Search trails

From the App you have the option to search for trails from the World Search Map. Go through the following steps:

1. Open the map: By pressing the "Map" button, a map will appear and show the activity icons which have trails starting in the surrounding area.
2. Spot the trail start area:
  - a. If you know the starting point location name, use the search bar to quickly take you there.
  - b. If you want to explore a specific area, slide the screen with one finger to drag the map. Each time you move the map, the position filter changes. For this new area, trails to be updated on the map, remember to click on "repeat search".



3. Trail preview: If you click on one of the icons, a summary of the route will appear at the bottom of the screen. If you want to see the next trail preview, slide your finger over the current preview box to the left.
4. See all the trail's information: If you want to know more about the route, click on the preview box.



## Follow a trail

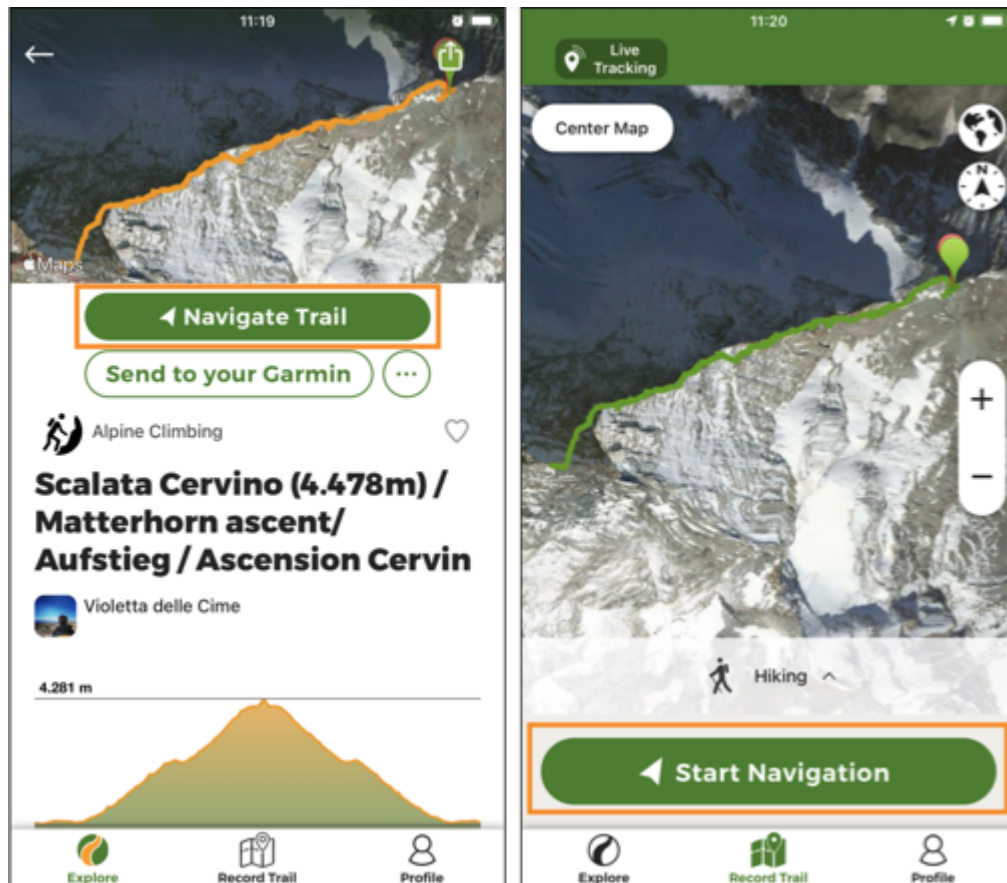
These steps explain how to start following a Wikiloc route:

1. Whether you are searching for the route from the "Explore" app tab or from your "Profile" tab, once you enter the trail sheet you will see a "Navigate Trail" button.
2. Once you press it, your device will automatically download the route on your App's local storage and open the "Record Trail" screen.
3. To start following this route, click the "Start Navigation" button. If you want to follow it another day, you will be able to access it from the "profile" and "saved trails" tab.
4. Once you click on the "Start Navigation" button, the trail will turn into a "navigating" status. You can download Wikiloc free offline maps and follow the trail offline. You will save your battery that way!
5. Once you get closer to the track, the device will give you navigation directions to follow the trail. In the top right part of the screen, you will see a compass. The map will change and rotate depending on your position. If you would



rather keep the map fixed in one position so that you always see it oriented to the north, click on the compass.

6. When you complete the trail, you will have the option to "Save" and upload your own trail version to your Wikiloc profile.



## Record a trail from the App

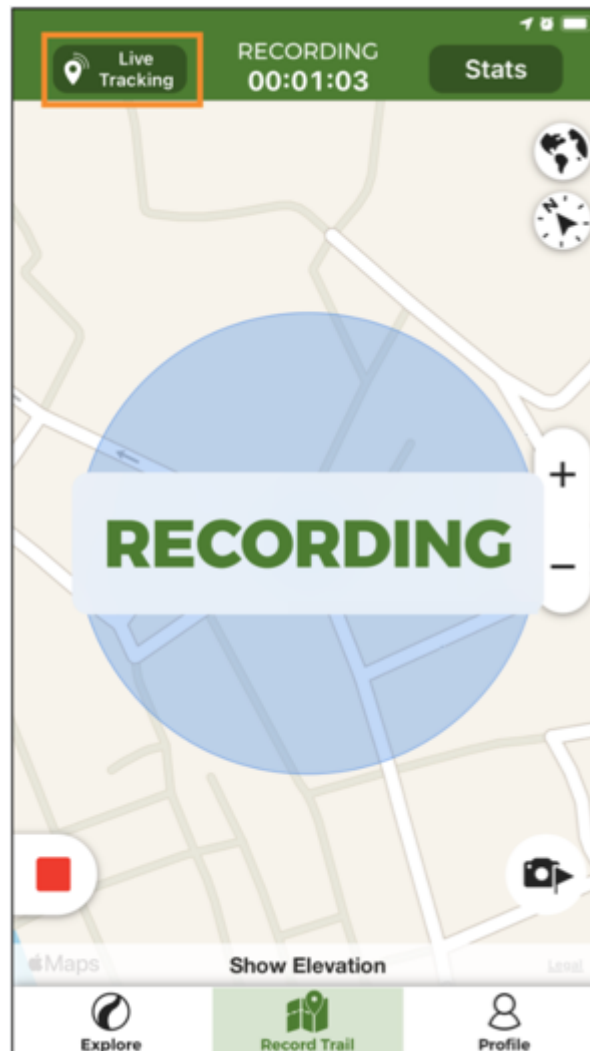
You can also create and record your own route on Wikiloc from scratch:

1. Go to the "Record Trail" tab
2. Click on "Start recording"
3. Start recording your route:
  - a. To "Pause the route", press on the red square
  - b. Useful if you want to cut a part of a route, for example when you need to deviate for just a moment but do not want it to appear on the route.
  - c. In the event that you need to rest, there is no need to hit the pause button as the App already takes this into account and calculates the total time and the real-time movement for your trail.





4. "Finish the route": Fill the route information sheet (Name, Description, Activity, Roadmaps, Level of Difficulty and Photos), and choose if you want to "upload" it or if you want to save it as private "only local copy".
5. Save the trail.




### Create a Waypoint with the App

While mapping your hike it's a good idea to mark the most relevant points of the trail you are recording.


1. On the recording screen, whether you're on the *Map* view (where you see the track on the map) or the *Stats* view (where you see a summary of statistics), you can see a "camera and flag" button.
2. By tapping on it, you will create a new Waypoint and take a picture.
3. Your device will ask you to choose the App to open.
4. Click on your camera option, take the picture and click on the "tick" button.




5. You will access a screen to fill out the data of the new waypoint.
6. On the waypoint creation screen, you can include the following information:
  - a. Waypoint type: Select from among 40 different types (e.g. summit, lake, river, waterfall, fountain, cave, risk, panoramic view, wildlife observation, shelter, parking, etc.)
  - b. Waypoint name
  - c. Description
  - d. Add photos




Waterfall  
**Waterfall**



↑ 2,671 ft



Panorama  
**Panorama**

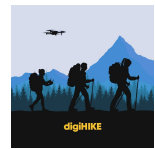


↑ 2,805 ft

If you don't have time to fill out the information at the time of the Waypoint creation, there are two options to do so later on before uploading it:

- ❖ While recording: Click on the previously created waypoint flag on the map.
- ❖ At the end of the recording: In the trail form (final step before uploading the trail).

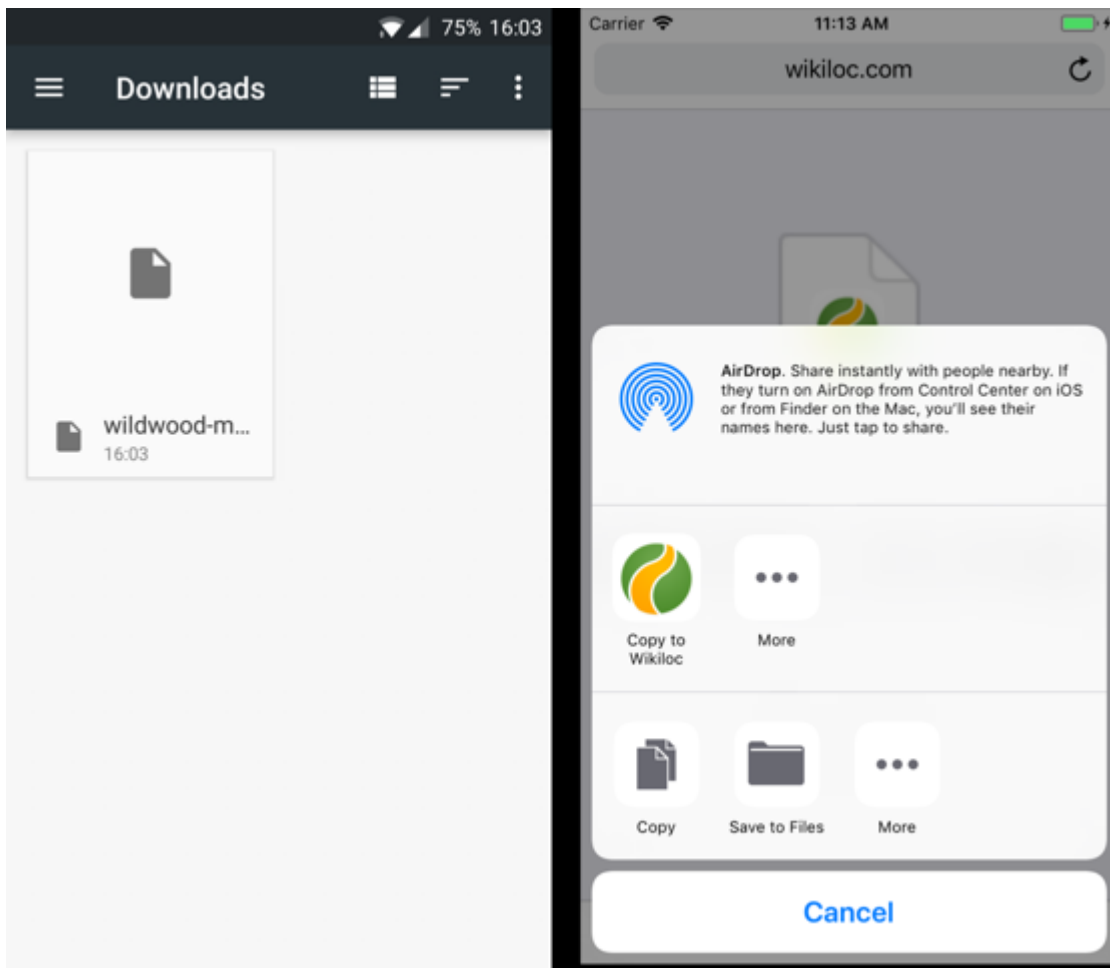
Once uploaded to Wikiloc, you can edit it on [Wikiloc's website](https://www.wikiloc.com/).



## Share your trails with other hikers

Once you've created a trail with waypoints on your smartphone you can modify the information for the route by clicking on the "pencil" button located at the top-right corner on the trail screen. In order to export it to the Wikiloc App you will need to:

1. Have the Wikiloc App installed
2. Have the trail file in your device in a .gpx format
3. Import the trail:
  - a. From Android:
    - i. Have a file management App (for example "[Total Commander](#)")
    - ii. In the file manager, click on the trail file. After clicking on "open", choose the option "Wikiloc".
  - b. From iOS: Share the .gpx file and choose the option "copy to Wikiloc"





In order to share your favourite trails from the App you can choose one of the two sharing option:

1. QR Code: Open the QR code for your friends to scan with the new in-app QR code reader. To see this option, you must have logged in to the App with your Wikiloc user.
2. You can also share them via Whatsapp, Facebook, Twitter or others (email, Instagram direct message, Facebook Messenger, SMS, Bluetooth, etc).

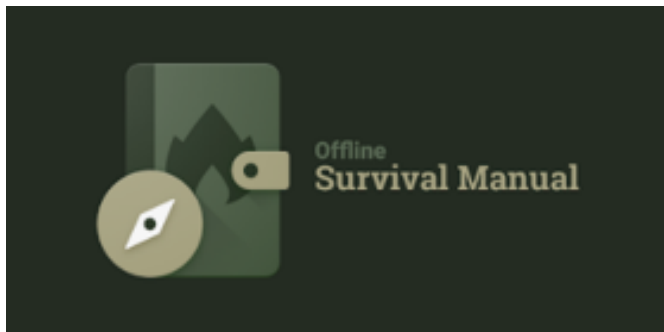
### What other smartphone apps can facilitate a safe experience in the mountains?



There are also various other mobile applications that can enhance your safety in the mountains and help you to tackle some potential accidents, injuries, illnesses, unexpected weather conditions or guide you if you get lost.



## Offline Survival Manual (for Android) and Survival Manual (for iOS)



Both the [applications](#) work offline, which is important in a case of some extreme or emergency situation. However, the apps don't have to be used in emergency situations only, but can be also very useful for whatever outdoor trips, camping, or generally learning about nature.

The apps contain information on how to:

- ❖ plan and prepare for the nature trips
- ❖ how to make fire
- ❖ build a shelter
- ❖ find and prepare food, water and its purification
- ❖ find a direction using sun, shadows, stars, prepare improvised compass
- ❖ recognize and avoid dangerous animals or poisonous plants
- ❖ provide lifesaving steps and medicine that could be used
- ❖ survive in various environments – basic principles of survival in desert, tropical or cold weather

There are various sections, it is very user friendly and easy to navigate and find what the user is looking for.

The application has 4,6 users points out of 5 in Google Play Store and the same number in App Store.





## First Aid – IFRC (only Android)



[The app](#) gives you access to information about first aid emergencies. There are videos, animations and simple step-by-step advice to various first aid scenarios. In addition, in your free time you can educate yourself about First Aid through interactive quizzes, which make learning fun and easy. The app is integrated with emergency numbers and also contains safety tips during severe weather conditions like hurricanes, earthquakes and tornadoes. It has 4,3 points in Google Play Store.

In addition, we recommend you to check and use also some other applications when preparing for hiking, for example:

- ❖ weather applications (for example: AccuWeather or Mateoblu weather & maps)
- ❖ compass – might be already pre installed in your phone
- ❖ some national app that allows you to just by press of one button to call Mountain Rescue Services and locate you (e.g. in Slovakia application is called “155.sk”)
- ❖ family locator and GPS tracker particularly in case you plan to go for a hike alone, or can be useful for teachers during the hiking trip with more people. You can create a group for all in app and see location of all in case somebody get out of the track, dictionary in case you hike in different country and would need help with the translation of the navigation sites or to ask other hikers or locals for help

In addition, it is very useful to have a flashlight in your smartphone in case of planned hike in the evening/night or unplanned prolongation due some unexpected circumstances.

You can also download some texts or publications in your phone regarding those topics – e.g. regarding survival or first aid, since all those applications take some space in your phone (just in case you have limited capacity).



## How to make the mountain hiking experience more fun and interactive?



There are many other applications that can make the mountain hiking experience more fun and interactive. A few examples bellow:

### iNaturalists



[The app](#) helps you to identify the plants and animals that you can see while hiking. You can take a picture of the plant or animal and upload it in the app. It works like an encyclopedia of the species, but in case the picture could not be recognized by the app, other members can help you. In addition with your pictures and observations you help scientists to collect new data about nature. The application has 4,0 points in Google Play Store and 4,7 points in App Store.



A similar application for identification of plants is called [PlantNet](#). In addition, there is also [BirdNet](#) for identification of birds based on the sound. [Mushrooms App](#) can help you to identify found mushrooms through pictures. [Google Lens](#) for Android identifies animals, plants and also translates text.

## Relive



With [Relive](#) you can track your hiking trip and share it on social media with a created 3D video story through a map you went and pictures you took. It allows you also to analyze and highlight your activity – e.g. maximum speed.

Relive has 4,6 users points in Google Play Store and 4,9 in App Store.

[PeakLens](#) (for Android) or [PeakVisor](#) (for iOS)

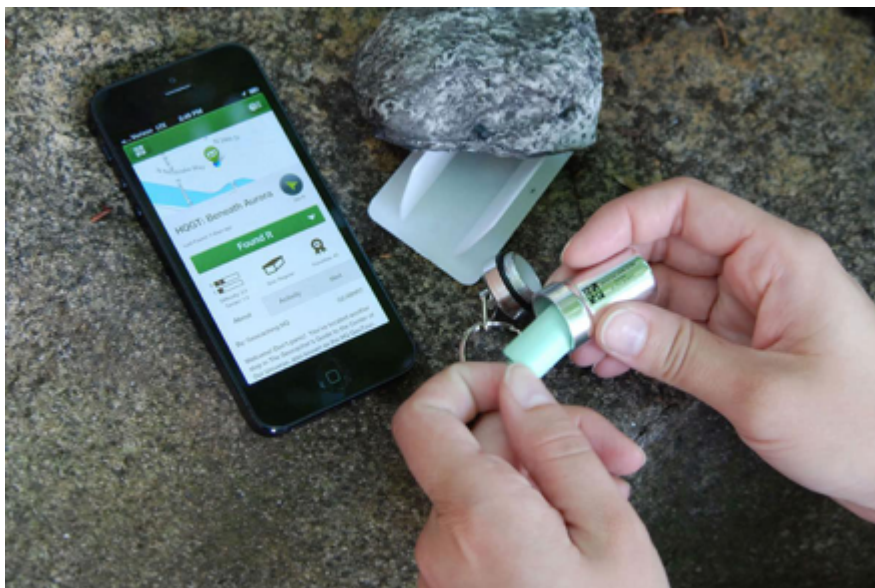




You can find out the names of the mountains and hills around you while hiking. You only take a picture and the app compares what you see in the camera with a virtual panorama, created from a digital 3D landscape model of the Earth. The app works also offline. PeakLens has 3,2 user points and PeakVisor 4,6 points.

In addition, there are various similar other apps available for Android – e.g. [PeakHunter](#) and [ViewRanger](#) that work on the same principle, but their coverage or accuracy might differ based on the location where you are.

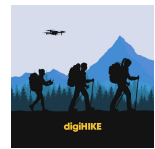
### [Geocaching](#) (Android and iOS)



Treasure hunting game while discovering places around you. There are millions of hidden containers/geocaches in various secret locations, also mountains. The app allows you to navigate to the cache using map and compass, but also to text to other players and get some hints.

The application has 4,3 points in Google Play Store and 4,9 points in App Store.





[Useful Knots – Tying Guide](#) (for Android) and [Knots: Animated steps](#) (for iOS)



Such an app is a quick reference for the most practical knots that can be useful during the stay in nature. Knots are categorized by type. Each knot has a description, step by step instructions with pictures and guide on how to tie it. Knot pictures are stored offline and no internet connection is required for the application to work.

Android app has 4,5 points in Google Play Store and iOS app has 4,9 points.

[Star Walk 2](#) (Android and iOS)



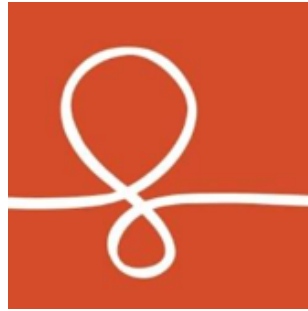
[Star walk 2](#) is an exquisite stargazing application to explore the night sky through the screen of your device. You can get familiar with thousands of stars, comets, planets, constellations, and other celestial bodies only through pointing your device to the sky. You can map the sky in real time, get 3D models of constellations and other sky objects and get the latest astronomical news too.

The application has 4,6 points in Google Play Store and 4,7 points in App Store.





## Couchsurfing Travel App



In case you want to stay in the mountains for several days and prefer standard accommodation rather than a tent and sleeping bag, this app can be useful too. [Couchsurfing](#) is a great way to stay with locals in the destination where you travel, make new friends, discover events around or hang out with other travelers. In addition, you can also use standard websites and apps to book the accommodation – for example Airbnb or Booking.com.

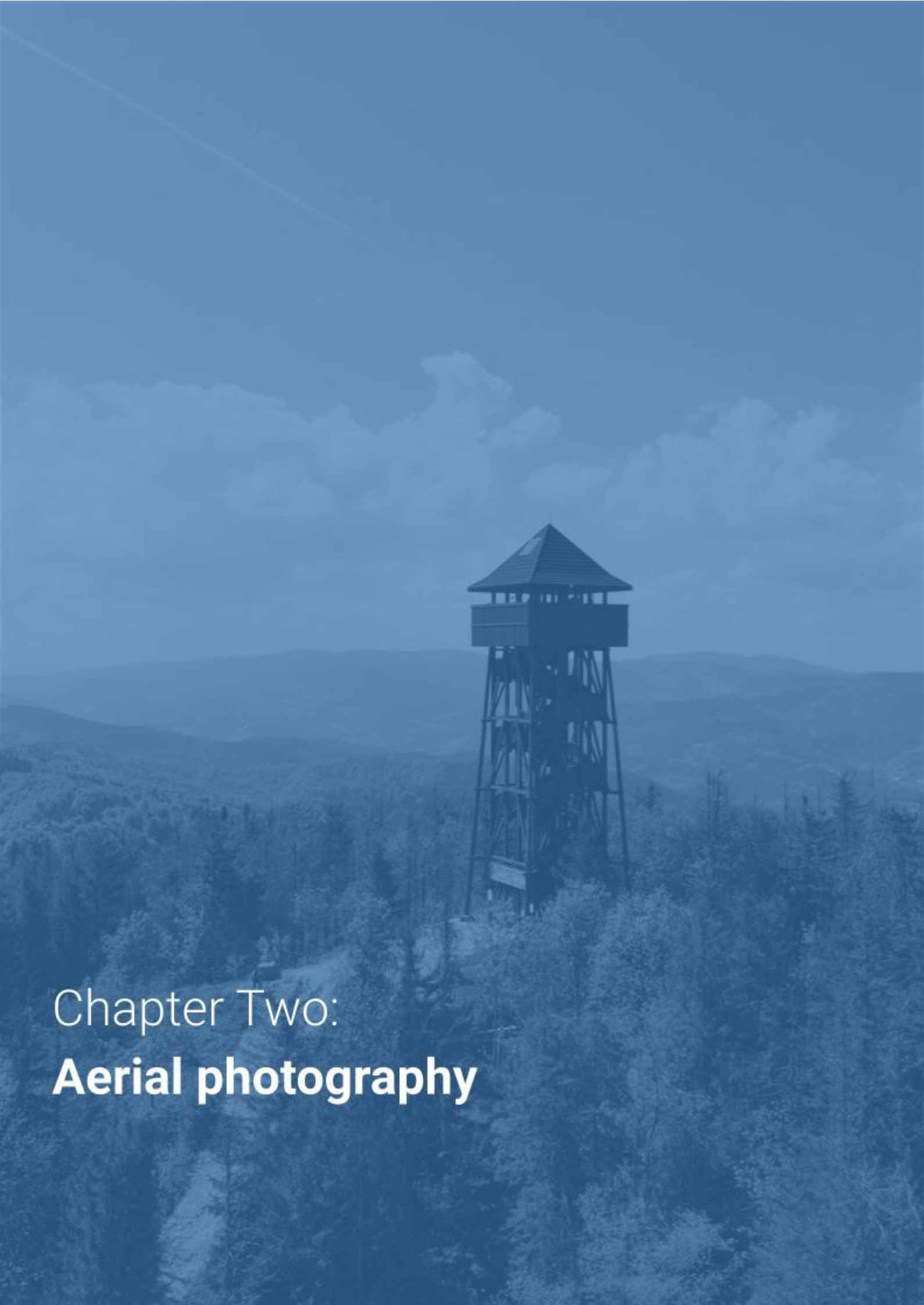
## [Meetup](#)



Here you can find various events, meetups or groups nearby based on your interests, some of them also focused on planning hikes together with other people or events to share other hiking or traveling experiences.

Many people share their experiences and photos from hikes in various portals or Facebook groups in order to inspire other people to do such a hike and explore that natural area. You can find various Facebook groups in your area and your language. We have created one specifically for this project [The Way We Hike](#). Feel free to join us!

You can also monitor your performance and physical activity through various applications like [Sport tracker](#) or some other apps if you have a smartwatch (for example [MiFit](#) or [Polar Flow](#)).



Chapter Two:  
**Aerial photography**



## Chapter Two: Aerial Photography

Hiking in the mountains gets a new dimension when you can take coverage of your trails from an aerial perspective and then share the pics with friends. In this chapter we will focus on how to use drones for this purpose. Drone photography and filming have been a fast-growing trend in recent years and there are lots of guides available on the Internet. We provide some of the useful links that we gathered while writing this publication in the closing chapter. The objective here is to give an overview of the key areas which can be explored in more detail through these links. We'd like to map the whole field and make you more confident to venture into this exciting venue of creative activities.

If you take a group of young people on a mountain trip with a drone you get a unique opportunity to engage them in a number of tasks. First you need to acquire a suitable device and this is best done in consultation with the young participants - some may already know a lot about the technology and will be certainly pleased if involved in the discussions about affordable equipment. When the drone arrives, you should run preparatory sessions in which everybody needs to learn the basics of how to navigate it, take photos and shoot videos. Such sessions are best organised before the mountain hikes, somewhere in an open space, safe enough for practising. Then comes the fun of planning the trip on a trail that gives possibilities for drone flying and offers stunning views for aerial photographers. The very trip, if well prepared, will be the highlight of the whole process. When the group comes back with their aerial pics and shots they will have plenty of material for the continuation of the activities indoors - editing the material for sharing it on the Internet is also a motivating challenge. In what follows we take you through all these steps.

### What is aerial photography and how to get started?

Drones are used in many different fields - agriculture, military, commerce and the arts, to name just a few of their common applications. In the context of working with young people, drones provide a great opportunity for hobby activities, which, of course, does not exclude serious educational projects of a technical or artistic nature. Photo and film workshops will gain a new dimension when we include drones in their program, as they allow us to photograph and film from a completely new perspective.



For the photographer, the drone is a flying camera that allows you to take pictures of various objects from unique points of view. Recently, the costs of purchasing such equipment have dropped significantly, which allows for the popularization of hobby aerial photography. In addition to great bird's eye view photos, such tours also give you the opportunity to spend your time in an interesting way.

As with standard photographic equipment, the quality of the built-in camera and the parameters of the drone itself vary greatly. Low-budget models only allow you to take simple photos, while more advanced drones allow you to photograph and film at a professional level. A compromise solution is to equip the drone with GoPro, if we already have such a camera, to do an 'upgrade' of the basic model.



At the beginning, it should be noted that drones, although easy to use, should be used with common sense and care for the equipment. In fact, this is an essential aspect of the art of drone flying. Let's not be fooled by the idea that loading the battery, downloading the smartphone app and firing the drone is all it takes to take great aerial photos. The whole process is certainly more complex. You should start by configuring flight limitations in the smartphone application that allows you to pilot the drone, in particular to set the limit of the height to which it can fly, as well as the distance it can fly. Take off in a spacious place. You should spend enough time on the field piloting test and make sure that we are aware of our position in relation to what is around us. Drone cameras usually have a wide-angle lens, so it is easy to



misjudge the position of the drone when it comes close to a tree, building, or other object. You need to be clearly aware of the limitations of the smartphone screen!

Drones have a number of advanced features that make aerial photography easier:

- ❖ By connecting your smartphone to your remote control unit, you can exactly see on the screen what the drone is viewing. In this way you can make perfect compositional adjustments.
- ❖ Drones have extensive camera controls – auto or full manual control, RAW capture, even time-lapse.
- ❖ Their stability features are incredible - a drone can hover in one spot almost like an aerial tripod, you can take your hands off the controls and the drone will stay in that position.
- ❖ The drone can detect when its battery is getting low and will get into automatic return-to-home (RTH) mode.
- ❖ If the connection between the remote control and the machine itself is lost the same RTH mode is activated.
- ❖ Another very useful RTH feature is activated when you lose sight of your drone, which is actually quite common when it gets some distance away. In that case you can just press the RTH button and your aircraft will safely return to you.

Once you have mastered the basics of drone navigation, you can move on to learning how to use the camera to take photos and videos. The first bird's-eye shot displayed on the computer screen, with beautiful views that we managed to photograph, brings a lot of joy. In the beginning, each photo like this looks great. But soon we will become more demanding when judging the quality of the photos and the factors that influence it.

As with other forms of photography, light is the first factor to consider. To take great photos with a drone, you need to be able to follow the light. You also need to be aware of other weather conditions and what we can get thanks to them and what limitations they bring. Flying in strong winds is a risky business, in which case we should rather wait for calmer weather.

The built-in cameras in many affordable drones come close to the quality that a camera on a nice smartphone allows. Often, aerial photos will turn out to be surprisingly good, especially if we use the light skillfully. Even when shooting in low light, you can take great photos for such a small camera, thanks to the image stabilization function, especially when taking panoramic photos - the effects are often spectacular. You can also use the drone to record high-quality videos for





fantastic aerial shots. Thanks to the high resolution of cameras installed in many drones, it is also possible to cut high-quality frames directly from the recorded footage.

When you master the skills of taking aerial photos you'll certainly love the unique views and amazing patterns in the landscape that can be captured from above. Your drone will let you get into the areas below 100 metres, not accessible to most planes and helicopters. When preparing the mountain trip you can use maps for hikers to find and choose trails that look worth exploring with the drone. If you are a ground photographer, aerial imaging will add an extra unique aspect to your photography. And don't forget how much fun it is - both during the trip and afterwards when you come home with great pics and video clips.

### How to choose a drone with sufficient parameters for hobbyist mountain filming and photography?

Drones have had widespread advances in technology, developing gadgets for each budget. The first-rate continues growing and the expenses keep going down. There are less expensive drones that encompass a digital camera able to capture 4K video at a rate of 120 fps. And there are others wherein a GoPro digicam may be attached. You may even construct your very own drone, 3D-printing its body and assembling it with electronics and a digital camera of your choice.

Various design and performance functions in addition to many manufacturers available in the marketplace make shopping for a drone an elaborate business. This chapter will assist you notice the basic variations among drone types and pick the ones most suitable for hobbyist mountain filming and photography.

Let's first bear in mind three important matters for this type of choice: budget, experience and purpose.

Here are some tips on what to think about before buying:

- ❖ A cheaper drone will let you learn the basics before investing in a higher quality machine.
- ❖ Such drones are equipped with very basic features/controls while the more expensive ones have high-definition cameras and autonomous flight modes.
- ❖ Most of the drones are quite easy to repair in the case of a crash, but then the cost of parts should be added up.
- ❖ Their flight time is limited by the battery life, so an extra battery is really needed on a hiking trip.



- ❖ Before real flights it's a good idea to use a simulator to learn drone navigation. Such a programme can be easily obtained on the Internet and installed on the computer.

Let's now look at the types of drones which can be considered for enriching a hiking experience.



### Beginner Drones

As the title says, these drones are just to begin the experience and learn the basics, not really for landscape photography. Example models are the [Parrot Mambo](#) or the [Hobbico Dromidia Kodo](#). These easy and less expensive drones cost round 80 EUR and are straightforward and easy to learn. They may be accessed via a smartphone app or included remote control. As you may expect, the flight time of such drones is likewise extra limited – less than 10 mins in most cases, or maybe fewer than five for the most inexpensive models. Spare components are available at pretty low costs if something gets damaged. To start an aerial images experience, search for the ones that include a video camera, despite the fact that the quality of the photographs can be poor. Having all these limitations in mind, you'll find out that getting a beginner



drone is a great way to learn to fly before you upgrade to a more advanced model. The advantage is that they don't cost much and can be easily fixed in the case of a crash.

### Camera Drones

These drones are specifically designed to capture images, and range in price from 400 EUR to 1300 EUR. There's a wide choice of such drones on the market, just to list some examples: [DJI Mavic Mini](#), [Parrot Bebop 2](#) or [GDU Byrd](#). They are built to provide a steady platform for the camera. These sophisticated drones can record high-quality videos and still images.

Filming drones are equipped with gimbals designed to amortize the camera from vibration of the motors, so that the lens is stable. Gimbals come either as a built-in electronic camera system or as a physical device composed of engines and gears. They allow you to point the camera under any angle and get high-quality images.

Camera drones are usually equipped with larger batteries, which extends their flight time, up to about 20 minutes. Batteries can be replaced to extend the photo shoot. They are also designed to be repaired in the event of a breakdown, their spare parts are relatively inexpensive and readily available. Quality of videos and photos captured by these drones vary greatly from decent to professional. A cheaper drone like the Bebop 2 will surely satisfy most of the hobbyist, the more discerning will invest in more sophisticated equipment that allows them to take photos and videos of high-quality.

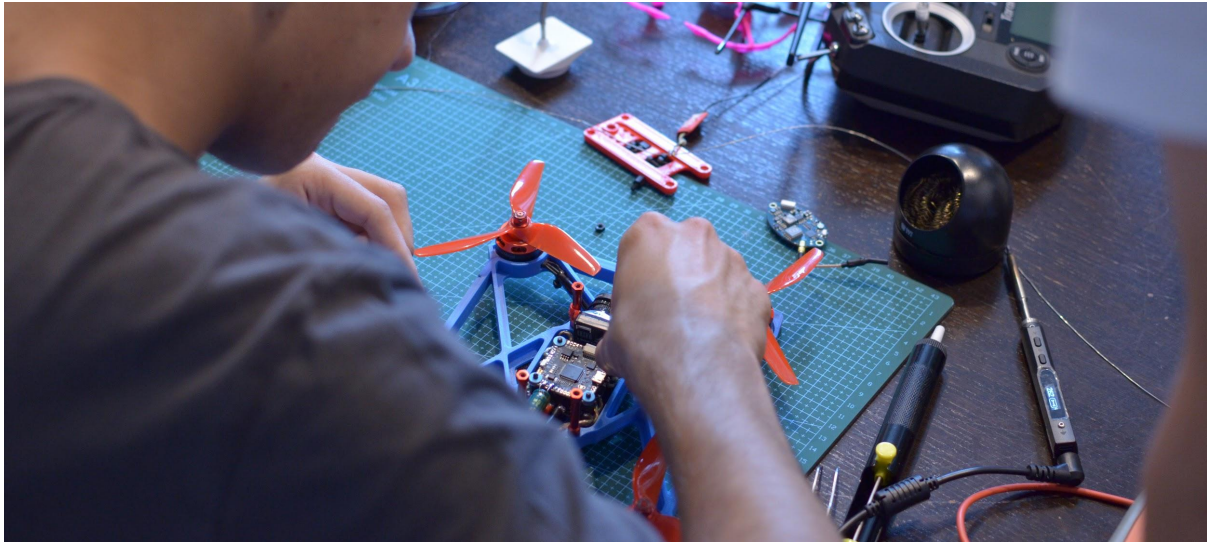
Camera drones are used for many different purposes, including landscape photography for which mountain trips are a great opportunity. To facilitate such photo sessions, more advanced drones have an autonomous flight system in which the camera is additionally used to detect and avoid obstacles in the field. Thanks to this technology, the user can set a specific course for the drone on which it will be navigated with GPS. However, autonomous flights do have some limitations as the drone should be kept in sight at all times, and the pilot must be able to take control of the drone at any time. In most countries, such drones are subject to registration with the appropriate authority.

### DIY Drones

For various reasons, it may turn out that the drones available on the market will not meet our expectations, whether it is due to their price or individual parameters. In that case, consider building your own drone from the basics, adapting it to your own requirements. There are many tutorials on how to build a drone step by step. Let's only list the key components here needed to build a drone. Selection of individual



parts will obviously depend on the type and quality of the drone we want to build. There are, however, a few common elements that all drones require. These include: motors, electronic speed control, flight controller, the drone frame, propellers, batteries, connectors, camera, gimbal, a mounting pad, a micro SD card and an RC receiver. If you have trouble finding parts for your drone, there are websites such as [RobotShop](#) or [HobbyKing](#) which sell all the components for building a drone. You can also purchase a DIY kit with all the necessary tools included.



### Racing Drones

Drone racing is not necessarily a proposition for a mountain hike, but discussing the types of these devices it is difficult not to mention racing drones briefly. Drone competitions led to the popularization of hobby flying. These types of drones are specially designed with a focus on speed and agility. Pilots can navigate the machine seeing through the "eyes" of the drone thanks to special glasses, which make it easier to navigate the course and compete with others. Racing drones are constructed in such a way that their weight is as low as possible and the engine power is as high as possible. The price range for these machines is wide: the cheaper models start from around 80 EUR, and the more expensive ones go up to 700 EUR or higher.

### Drone Accessories

If the drone has enough lift from its propellers and motors, it can carry additional equipment. Drones that support outdoor cameras are usually built to carry additional weight over and above the weight of the drone itself. However, the increase in weight puts additional strain on the engines, and reduces flight time and machine stability.

The most popular and useful accessory is a backup battery. Due to the fact that most batteries provide only 5 to 25 minutes of work in the air, and recharging them



takes at least an hour, it is worth getting an additional battery or even several if we have the funds to do so.

Another very useful drone accessory is spare propellers. The drones are built to survive a collision with external components made of durable materials such as polypropylene foam and carbon fiber. They act as a shield to protect more sensitive parts, such as motors or transmitters. However, not all parts have this resistance. Propellers are most often damaged, but they are also the cheapest and the easiest to repair or replace. New drones usually have extra propellers included, other spare parts can be purchased separately. When ordering them, remember that drones have propellers with different spin directions, some spinning clockwise and the other counterclockwise. You have to remember about this when ordering spare parts.

Other accessories and additions are less important, but can also be useful. These include LED strips, propeller covers and additional landing gear. Drones intended for shooting can be upgraded with various lens filters that allow you to change the level of light saturation or reduce glare. Another useful thing is a good case with a foam interior to protect the drone and its accessories from damage on the go.

### **What safety and legal precautions have to be taken to organise aerial photography sessions?**

Flying a drone can be fun but it's important that you know how to fly in a way that doesn't pose a risk to any other aircraft or people. Rules adopted to ensure safe and secure operations of drones both for commercial and leisure activities vary from country to country. Common European rules on drones were published in June 2019 to come into force as of 31<sup>st</sup> December 2020. These rules amongst others help to protect the safety and the privacy of EU citizens while enabling the free circulation of drones and a level playing field within the European Union.

The common rules aim at helping drone operators to have a clear understanding of what is allowed or not. At the same time they enable them to operate across borders. Once drone operators have received an authorization in the state of registration, they are allowed to freely circulate in the European Union. This means that they can operate their drones seamlessly when travelling across the EU.

Design requirements for small drones (up to 25kg) are implemented by using the well-known CE marking ("Conformité Européenne") for products on the market in Europe. Accordingly, all drones available on the European market have CE marking and a number between 0 and 4 specifies the class of the drone (C0, C1, C2, C3 and





C4). The operator will then find in each drone package a digital consumer information with the “do’s and don’ts” on how to fly a drone safely.

A very useful guide on do’s and don’ts when flying a drone is provided by [EASA - European Union Aviation Safety Agency](#). This is a summary of the key points for C2 drones, relatively small devices (<4 kg) that you can fly at a safe distance from uninvolved people. These types of drones are most likely to be used on a mountain hike.

The basic requirements are the following:

- ❖ You need to be registered and to pass an online test
- ❖ If you intend to fly close to people, you need to pass a theoretical test in an entity recognised by the national aviation authority
- ❖ You should display your registration number on the drone and upload it onto the e-identification system

#### Do’s

- ❖ Make sure you are adequately insured
- ❖ Check your drone before each flight
- ❖ Plan your flight
- ❖ Make sure the electronic identification and geo-awareness system of your drone is up-to-date
- ❖ Before each flight, check the limitations of the area where you want to operate, defined by the National Authority of that country, and respect them
- ❖ Familiarise yourself with the area where you want to operate your drone
- ❖ Check the weather conditions
- ❖ Keep the drone in sight at all times
- ❖ Maintain a safe distance between the drone and people, animals and other aircraft
- ❖ When flying close to people, activate the low speed mode and keep a horizontal distance from them of at least the height of the drone (1:1 rule), but never less than 5m
- ❖ Operate your drone within the performance limitations defined in the instructions provided by the manufacturer
- ❖ Inform your national aviation authority immediately if your drone is involved in an accident that results in a serious or fatal injury to a person, or that affects a manned aircraft

#### Don'ts

- ❖ Do not make changes to the drone, unless approved by the manufacturer
- ❖ Do not fly higher than 120 m from the ground



- ❖ Do not fly near manned aircraft
- ❖ Do not fly in the proximity of airports, helipads, areas affecting public safety or where an emergency response effort is ongoing
- ❖ Do not fly over sensitive or protected sites (prisons, military bases, power plants, etc.)
- ❖ Do not use the drone to carry dangerous goods
- ❖ When flying over other people's property, do not fly less than 20 m above the property without their permission
- ❖ Do not take photographs, videos or sound recordings of people without their permission
- ❖ Respect people's privacy

### How to organise drone flying introduction sessions indoors and outdoors

The best idea to start is to run an introductory workshop indoors. The first sessions should cover at least the points that we've outlined above. The participants will be acquainted with the drone basic construction and navigation principles as well as safety regulations which should be given proper attention from the beginning. Ideally, each participant should have an opportunity to directly explore the flight controller functions and learn how the activated commands impact on the drone performance. There are a number of excellent simulation tools which can be used for this purpose.



A simulator is software designed to simulate the piloting of a drone. It uses a real drone controller connected to the computer. Before buying such a program, check the compatibility of the simulator with the computer to make sure that it will work properly on our device.



Another factor to consider is the type of flights we want to master in the simulation. There are two different categories of flight simulators - simulators for learning to pilot commercial drones and racing drones. The first category is certainly more useful for tourists interested in taking aerial photos on mountain trails, especially those tools that allow the selection of specific flight scenarios. In this way, you can prepare for specific situations, likely in the wild, when flying over forests or lakes, or taking pictures of the group during a hike.

In what follows we briefly present two examples of drone flight simulators with an encouragement for prospective users to visit their websites and explore the simulators' features in more detail.

### [DJI drone simulator](#)

This is one of the best options in view of the above considerations. It comes with three different flight modes and a comprehensive engine that replicates the feeling of real flight (wind effects, ground effects, simulated crashes). Also it allows a choice of flight scenarios for pilots to practise flying in different situations, mainly commercial but adaptable to other challenging flight contexts.

What is important, the DJI simulator has a wide range of supported controllers, i.e. Mavic, Phantom, Matrice, Inspire and Lightbridge series (check the specific types on their website) so it is likely that you will be able to practise flying your own drone. They offer a [free trial version](#) to get a feeling of what learning experience can be expected with the full version.

### [Zephyr Drone Simulator](#)

This is a learning-focused simulator offered for both individuals and training institutions, so a great option for group workshops. Its free license comes with the following basic scenes - the yard, the hill and the parking lot so it lets the users practise flying in some basic situations. You can then upgrade to more scenes and functions at a reasonable price (65 EUR for Technical Flight & Advanced Locations Bundle). They include various training scenarios designed for all skill levels: from the fundamentals of drone operation (taking off, hovering, moving to specified locations, landing) to more advanced scenarios offering detailed representations of real-world locations where a pilot might fly a drone (e.g. a challenging obstacle course).

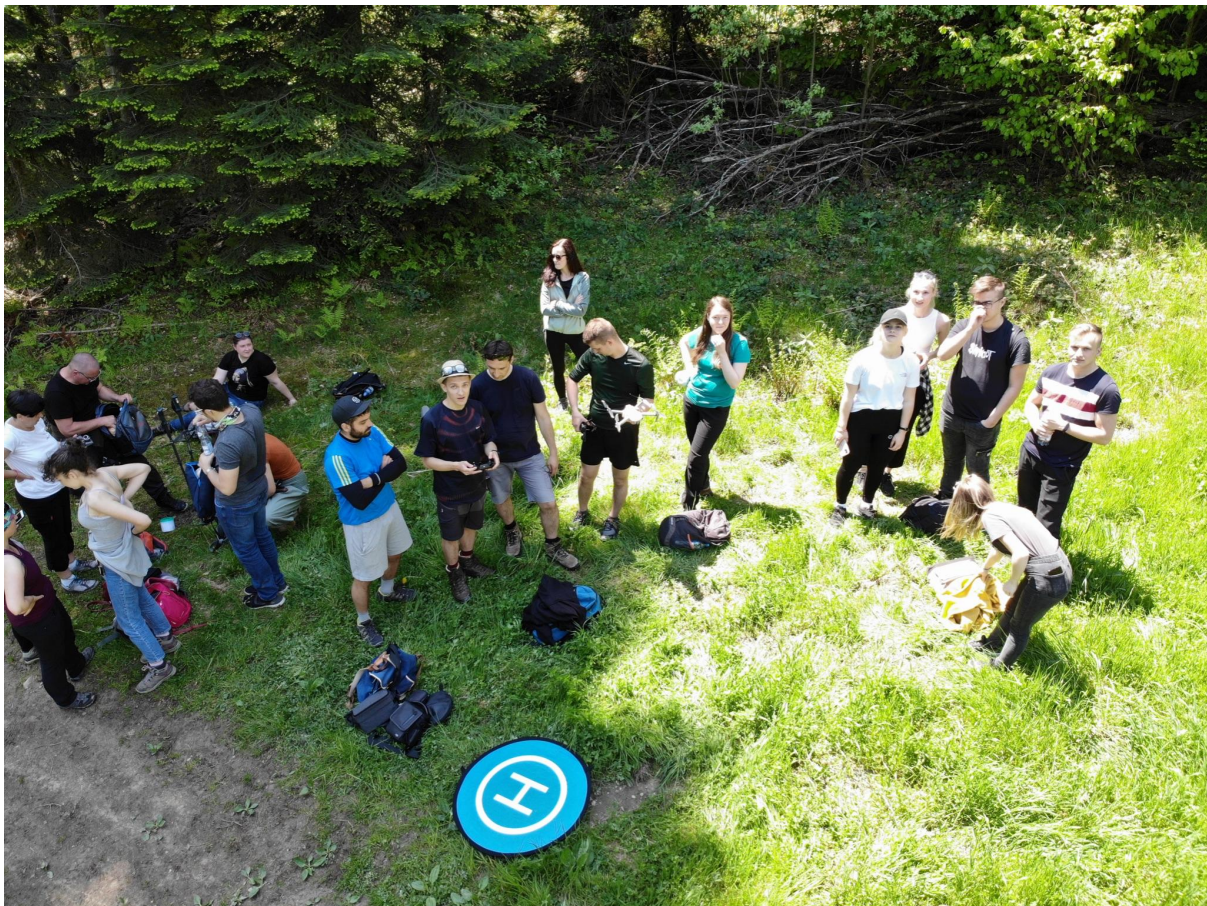
The drone models available to fly in Zephyr are limited (DJI Phantom 3, DJI Inspire 1, 3DR Solo, Syma X5C, Autel X-Star, Parrot Bebop 2, DJI Mavic Pro) but a more widespread representation is promised. The list of compatible controllers includes mostly third-party models and game controllers, although the developers of Zephyr are willing to accommodate other controllers for their users.





As you progress from basic flight training to more advanced scenario-based training, your skills are assessed and you are assigned a grade at completion of each module. This feature integrated in the Zephyr Learning Management System is very useful for training organisations as it allows instructors to seamlessly monitor and evaluate students' progress. This means that they get a clear frame of reference to decide who is prepared well enough to start flying a drone outdoors, in a real environment.

And this is obviously the point of the whole indoor preparatory process. At EST we didn't keep the participants in front of the screen for a long time. Instead, we moved outdoors after brief introductory sessions, first to the school garden which provided a spacious and safe environment for practicing basic drone operations, and then to mountain trails where to employ the acquired skills and knowledge to authentic tasks.



During the sessions in the school yard and garden we ensured that the participants learned to fly and manoeuvre our Mavic Pro drone smoothly and accurately. First, the instructor positioned the drone at a comfortable height where it could be seen and orientated well. Then each participant had a chance to put it into motion with a



forward movement of the right-hand control stick (on the DJI controller for Mavic). They had to focus on maintaining a constant speed and a still position of the stick once the drone settled into a comfortable forward speed.

Then we moved to left control stick control, which allows the drone to turn and adjust the turning radius by increasing and decreasing the pressure applied. The task for each participant was to keep a given radius and make a smooth turn with a constant radius and with a constant speed. In this way, participants were able to learn the sensitivity of the controls and the drone's response before practicing more advanced maneuvers that combine straight flight and turns. The first workshop activity allowed most of the participants to make an oval circuit with the smooth use of the control stick, and some were even able to make a figure 8.

Only at the 2nd workshop we introduced the participants to taking-off and landing techniques, which are the most crucial points of flying a drone. We picked out an area free of trees, power lines, and anything that can obstruct these maneuvers. Then we followed the safety checklist to ensure that the drone is in optimal flying condition (battery level, proper drone settings, etc). Each participant could raise the drone around 1 meter from the ground, hover it close to the take-off area and then slowly increase its altitude. After a circle in the air they had to bring the drone back to the landing spot, slowly lowering its altitude and decreasing the speed. After a series of such exercises we were ready to begin the aerial photography part of the learning experience.

The 3rd session was devoted to aerial photography. We decided to organise it in the school garden, convinced that there is no use of taking the drone on the mountain trail and getting the camera in the sky just to have a series of awkward looking, unclear photos. Obviously, mastering the photography skills can't be achieved in one session as it can only be learnt with time, but at least some basic introduction and practice is necessary to begin this fascinating experience with promising results.

The drone that the participants were using had a camera attached underneath, allowing them to capture photos and videos from any height (up to 100 metres). The drone was navigated with a remote control connected to an iPhone to see what the camera was viewing and capture pics from the air.





Before the participants began flying and taking photos, we explained to them the most important settings related to drone photography – how to select a shooting mode, adjust the camera’s exposure and calibrate the gimbal so the camera can capture level photos. Nevertheless, we began with the automatic settings in order to get them used to flying and capturing photos before proceeding to more advanced manual mode to be practiced only by the most skilled participants in the group.

The following workshop focused on practising the technical skills of taking aerial photos. Before each participant’s flight we clearly defined what area and object/s are to be photographed. Then they had the task to take the drone off the ground to a desired position and height and capture the assigned pics. In some cases the instructor had to take control of the drone and help the participants in adjusting the view for shooting but the majority of the group showed a sufficient understanding of the task and a skill in capturing ground objects from an aerial perspective.

The workshop finished in the school computer lab where we downloaded all the captured images on a PC. The point was to see and discuss the details, mainly from the technical point of view. At this stage, we also reviewed some of the beginner photography rules such as the rule of thirds, leading lines, golden ratio, etc, just in the nutshell, inviting the participants to explore this field during forthcoming mountain hikes. As we explained, these trips would give us many opportunities for capturing



interesting scenes of colors, shapes, and textures and thus an occasion to go deeper into the art of aerial photography.

The hikes attracted a much wider group of young people than the introductory drone flying workshops. Their main purpose was to explore nearby mountains and map interesting trails using digital tools. The participants used their smartphones for this purpose, taking pictures and filming some scenes to illustrate the maps. The prospect of adding aerial pics to the coverage was thus welcomed as a great idea. In each group we had a small number of drone enthusiasts and a qualified instructor to coach and guide them on how to take photos from the hike in a safe way with a view to results of artistic value. In what follows we just give a summary of the provided guidance and some insights into the achieved outcomes.



Basically, we planned three types of photo shots. The first type of photos were taken by looking directly down on the landscape, searching for interesting colour compositions, symmetrical shapes and patterns as well as textures of natural objects (trees, meadows, lakes, rivers). Technically, this was the easiest way to begin as it required the participants to take the drone up in an interesting location encountered on the hike and shoot a series of photos. However, in artistic terms



what initially seemed an easy task actually proved quite a challenge as only a small selection of images were really eye-catching with distinct features. At this stage the participants better realised the efforts and patience that is required over a long time to become an aerial photographer.

The second type of photos were taken across beautiful mountainous landscapes opening from the trails, especially from clearings in the woods. The participants could enjoy flights over emerging vistas from the drone high in the skies and capture a series of images. The point of each flight was to search for the most interesting angles and best compositions and then shoot them. Artistically, the task was even more difficult than the previous one. Some parts of the countryside, looking spectacular while flying, turned a bit flat and monotonous when viewed in the gallery of taken pictures. The best had to be selected from a large volume of photos with no distinct or interesting features. Still we managed to gather a number of images for further edition. This gave us a prospect for follow-up workshops involving a small group of budding photographers.

The third task in aerial photography was to take pictures of the trip participants themselves. This required once again checking the drone's settings and safety procedures to make sure that the flights would not harm anyone. It was this part of the activities that turned out to be the most engaging and fun, which is well reflected in the photos.



A blue-tinted photograph of three young women standing on a stone path in a mountainous area. The woman on the left is smiling and has her arm outstretched. The woman in the middle is also smiling and has sunglasses on her head. The woman on the right is wearing glasses and holding a small object. In the background, there are steep, rocky mountains under a cloudy sky.

## Chapter Three: **Mountain filmmaking**



## Chapter Three: Mountain filmmaking

Hiking together usually involves a lot of lively interactions among young people in the context of beautiful natural sceneries. If grasped on a video and shared via social networks they influence others to follow. In the digiHIKE project we organised a number of trips in the Carpathians during which the participants were gathering footage for their mountain films. In order to prepare them for these tasks and the follow-up stage of editing the material we conducted a series of workshops with the programme outlined below. We have consulted and drawn on a number of sources to cover all the essential skills needed to start the filmmaking experience (cf. the last part of this publication). This chapter was compiled by the Romanian partner organisation – Transylvanian Carpathian Society with a view to encouraging others to follow our introductory learning scenarios.







## How to develop a story for a video narrative?

In fact, every successful movie is a well-told story. The essence of the matter is not to dazzle the viewer with spectacular or fanciful images. The key aspects of classic film narration can be reduced to five basic elements:

- ❖ characters
- ❖ challenge
- ❖ direction
- ❖ climax
- ❖ resolution

### Characters

In the context of mountain films, it is worth focusing on presenting the participants in a way that will allow the viewer to establish some kind of relationship with the people appearing in the film, e.g. by emphasizing their expressive features to which they can relate. It should be done taking into account the scenery, place and time of the action. Who are the people on the screen? What does this character contribute to the narrative? Why exactly this? What motivates this character? What interactions does he participate in? These elements will help develop the narrative in a specific direction as the group follows a mountain trail, breaks apart, stops along the way, encounters difficulties or obstacles.

### Challenge

During a mountain trip, we often come across situations that require a lot of effort and determination to achieve the goal. There are steep ascents on the trail, the weather conditions change, there are various options for choosing the route, i.e. moments when decisions need to be made as to the direction of further march or a possible return. Such situations can give rise to different, often conflicting reactions in the group, and also lead to dispute / conflict. Capturing such situations on the film will increase its drama, the narrative will become more vivid, engaging the viewer while waiting for the solution to the difficulties encountered.

### Direction

A mountain trip usually has a specific direction, mission or purpose. Obstacles and unexpected events appear, the narrative goes up and down, catching the course and twists, to finally reach its climax.



### Climax

The climax does not have to be a mountain peak when it is reached. It may be, for example, a turning point in the narrative, where the group decided to take a more ambitious route than originally planned, or decided to return to the shelter in the face of bad weather. Building a film narrative with such an event in the center will allow us to bring the mountain movie closer to a good action movie.

### Resolution

Once we have sketched the film's scenery, introduced the heroes of the action, presented the difficulties and conflicts they went through at their climaxes, the narrative must be brought to a solution, an ending. It is difficult to give specific instructions on how it should look like. Sometimes it is worth showing the joyful people resting in the shelter after a long and interesting trip, or how the group got out of the difficulties they encountered. It is important for the narrative to close into a whole that is remembered.

There are also different perspectives for creating a narrative. The chosen perspective will influence the character and message of our story. The two most-used perspectives in shooting mountain movies are as follows.

### First Person Point of View

It is with this perspective that we have to do when the main character tells his story in his own words, from his own point of view. We then hear words like "mine", "me", etc. This point of view gives a more personal character to the narrative, as it is the narrator who tells about something he has experienced himself. This gives the narrative more credibility as the main character speaks for himself. This form is perfect when our film is to report discoveries or authentic events or facts from life.

### Third Person Point of View

The third person's point of view is all-embracing and omniscient - this perspective can be obtained with the storyteller or no narrative at all. References to a character in the movie will be "he" or "she" or, more likely, no direct reference to the character at all. This perspective can be characterized as the point of view of the silent observer. The narrative develops and the characters viewed are not aware of the viewer's existence. This form is often used in commercial films, but is also used in mountain films.



### Tips for good storytelling:

- ❖ Work out what the story is – or at least, what the story’s beginning is – before it begins. Follow it through its twists and turns until the end. And be prepared for the story to change.
- ❖ Create stories that have a beginning, middle, and an end.
- ❖ Show, don’t tell. Use visuals and sound to convey the message you want to share through your story rather than stating it outright. Think about how angles, colors, audio, and more all work together to create a feeling.
- ❖ Keep things short and snappy. Don’t fall into the trap of thinking that longer is better. Short stories can be just as compelling as long ones (plus they have a better chance of holding your viewer’s attention from beginning to end).
- ❖ Use humor to engage your audience.
- ❖ Don’t be afraid to get creative.

### What equipment to use for mountain filmmaking?

You have several options when considering choosing the right tools for your mountain filmmaking. But always remember what you intend to use it for: to travel. That means it should be first and foremost light and portable. The list of the needed equipment begins with cameras.





### Camcorders

They are intended for video recordings. Mostly intuitive to use. You can learn how to use them relatively quickly and easily. They record high-quality sound. They are perfect for fast shots while walking, so it is worth taking such equipment on a trip.

### DSLRs

The size of the matrix inside these cameras gives a really beautiful image. This allows for a shallow-depth-of-field. When this shot is well-made (and not abused), it undoubtedly produces a better picture than a camcorder in the same price range. Moreover, this camera can be used to take pictures without the need for a second camera. The downside is that these cameras aren't specifically designed for video recording and are quite bulky. The autofocus is weak and the ability to record audio is missing. Unless you have a lot of filming experience and know your camera very well, DSLR cameras are much more useful in controlled situations.

### Mirrorless cameras

Mirrorless cameras have the advantage that they are usually lighter, more compact, faster and better for video recordings. However, this is achieved at the cost of having fewer lenses and accessories, and often shorter battery life. For instagramers, influencers, bloggers and vloggers, a mirrorless camera is an excellent choice. They are small, light and handy and allow you to shoot from different angles. They are great for both movies and photos. It is easy to pack such a camera in a backpack.

### GoPro cameras

GoPro cameras are in common use among outdoor filmmakers. They give a great HD picture, and with each new model they become more and more flexible. They are second to none in dynamic situations. However, the limitations are obvious. GoPro cameras have only one field of view and it is extremely wide. In newer versions, the camera has a small LCD screen on the back, but it is still not suitable for composition. The sound quality is poor, so these cameras are only suitable for what they are designed for - action shots and sports clips.

### Camera gimbals

These devices combine an action camera with a built-in mechanical gimbal. Thanks to the stabilizer, you can get excellent quality of a movie recording, the fluidity of which is equal to what can be achieved when we have much more expensive equipment. Sure, we'll get even better results when using a DSLR or mirrorless camera with a large gimbal or a motorized panoramic time-lapse tripod head. But you have to bear in mind that the use of a gimbal will reduce the amount of equipment that we have to carry. But there are also downsides: sound quality, not the



best in all situations, short battery life, hardware doesn't do well in low light (not suitable for indoor shooting).

### Smartphones

Smartphones are a new hit in travel movies. Of course, they do not match the quality of video cameras, mirrorless cameras or digital SLRs. However the image is very good, and if you can find a way to stabilize the shaky body of the camera (for example, using a smartphone tripod), the quality of the recordings can be excellent. You can shoot the entire movie with one smartphone, although it is better to use an auxiliary camera for this purpose. Sound is again the main problem, although there are many solutions (independent sound recorder, smartphone microphone, etc.). So, smartphones are probably the most interesting option available for making mountain movies.

In what follows, we list the rest of the gear useful for mountain filmmaking.

### Audio

The video will certainly not produce the desired effect if the sound quality is low. This important element of filming is often overlooked. However, in order to capture the atmosphere of the surroundings we are filming, a microphone is essential. The viewer can tolerate a wide variety of footage when the audio is clear. However, if the sound is weak - voices too low, a lot of noise, whistling, etc. - it causes irritation, even if the visuals are brilliant.

Here are the three main options for recording audio:

- ❖ Shotgun microphone that is attached to the top of your camera.
- ❖ A wired or wireless tie-clip mic (also called lavalier or 'lav' mic) to capture one main character's audio.
- ❖ A separate audio recorder that you can then sync up with video.

### Tripods and monopods for stabilization

The image stability of your footage is critical to a successful recording session on the hike, so it's worth investing in a stabilization mechanism that is lightweight and compact. Carrying out heavy tripods for long periods of time will be discouraging.

- ❖ Monopods are the easiest form of stabilization for travel. They are incredibly compact and even some of the most rugged ones are still rather lightweight. A carbon fiber monopod may cost more upfront, but they are well worth the price.





- ❖ Tripods are the standard form of stabilization for photographers. There are many such devices intended for travelers on the market. When it comes to choosing the right tripod, the main considerations are weight, folded size, highest height when unfolded, and the load capacity of the tripod (will it support the camera / camcorder with the lenses). Rotary head tripods are best suited for travel, as they allow you to obtain even images regardless of the unevenness of the terrain.

### Batteries and power

Depending on the location, electricity may not be available while shooting and filming. Before going on a trip, you need to check whether you have a sufficiently durable battery or a spare one. The camera and camcorder aren't the only devices that need batteries. We should also not forget about other equipment, such as lamps. In the case of a smartphone, power banks that are worth having in the right number in your backpack work well. If we spend a lot of time in the car, a car charger will also come in handy.

### Memory Cards

If you plan to photograph and record a lot, the first idea may be to buy one very capacious SD or CF card. This seems like a simple solution, but it is actually best to have multiple smaller cards. If an adventure happens - for example, the camera drops into water - at least the photos and videos that were saved on the second memory card will remain.

### Lights, flashes, and reflectors

In travel photography, a video flash is usually a much more practical solution than wearing a flash. This is not to say that flashlights are useless for mountain photography, but the video light, which also doubles as a flashlight, will allow you to capture great images. Video lamps are compact and can be purchased for a relatively low price. Many types of these lamps are equipped with rechargeable batteries and even AA batteries. High-end video lamps have a variable color temperature. Thanks to this versatility, they are perfect for various situations. For example, you can use them to illuminate objects or adjust colors, or as background lights. Overall, the folding reflector is the ultimate lighting tool for traveling photographers and videographers. While most of your travel photos will use natural light, the flash will nevertheless allow you to take shots unmanageable without additional lighting.

### ND Filters

Regardless of whether we are taking photos or recording a movie, it is worth getting filters with neutral density (ND - neutral density). Shooting outdoors in the middle of



the day can prove to be a challenge due to the intensity of the light. In this situation, the ND filter will help you take perfect photos by adjusting its intensity. With an ND filter, the right combination of aperture and exposure, the camera can take photos and videos that would otherwise be overexposed.

### Laptops and external hard drives

Working outdoors is about more than just photographing and filming. A laptop is very handy to be able to dump and review photos and videos. It's a good idea to create a folder structure on it so that the files will be easy to find when you start editing. Photos and videos can be assigned to individual folders according to the time or place where they were taken. Backup your files on external hard drives as additional backups. Solid State Disks (SSD) are more durable and have faster read / write speeds.

### Cleaning kit and tools

In such equipment, we should have microfiber wipes and a dust blower that will allow for proper maintenance of the equipment. Dust, dirt, etc. are a significant hazard. Regularly clean your camera / camcorder lenses. When going on a trip, you need to take the necessary tools to disassemble the equipment in case it turns out that it is necessary to thoroughly clean the equipment. It's worth investing in a good quality multifunction tool that won't break down quickly. A set of steel multi-tools - screwdrivers, pliers and knives - is the best choice.

### Backpacks and camera bags

In the mountains, the ergonomic backpack-style camera bag is the best. The choice is wide - from small cases for only a camera and a few lenses to durable backpacks that can hold several cameras, lenses and additional accessories. Equipment with large dimensions, such as a tripod, can be attached to the outside of the backpack. Professional backpacks are designed so as not to restrict movement while walking, so it is worth looking around for such equipment when planning film / photo sessions in the mountains.

### Tips on packing and equipment:

- ❖ Keep your kit to a minimum. The lower the weight, the easier and faster you can navigate in search of interesting places and scenery. Filming in extreme places is already often associated with traffic restrictions.
- ❖ You must wear and carry appropriate clothes. When preparing for the trip, it is good to read about the places where you are going, talk to the people who have been there to get an idea of the necessary equipment. This will allow us to focus on filming and photographing, not on how to warm up or cool down.



- ❖ You should have a camera cleaning kit handy, as it may become necessary during filming. You never know when you'll need it - dust and water can ruin everything.
- ❖ Please bear in mind the limitations of your equipment. Don't try to film a bird soaring with your smartphone and count on a National Geographic cover photo!



### Which shooting techniques to apply with the available tools?

Unless you're already proficient in this area, here are some basic filming rules worth reading. They relate to composition, lighting, movement, shots, and angles.

#### Composition

As with photography, following the [Rule of Thirds](#) is a quick way to make your composition more interesting. Before you start recording, it's a good idea to take a moment to identify the main subject of your shot and then place it in one of the thirds of the screen. To facilitate this operation, most mobile phone applications display a grid that divides the screen into three parts by default. If there is a secondary object to include, it's a good idea to fit it in the next third of the screen. If that object is a person, the direction in which he or she is looking will make it easier to decide on the composition.

#### Lighting

Light is an extremely important factor in photographic and film shots. Most often, we do not have a lighting kit during a mountain trip, although it is often not needed at all. The best lighting we could wish for is available twice a day - sunrise and sunset. The



time right after sunrise and just before sunset is called the **Golden Hour** for a reason. At this time, we have the best light for photography and filming - be it landscape, city space or people. So let's make the best of these moments.

### Shots and angles

The way we capture an object or scenery has a huge impact on their perception. How we frame the object, at what distance and perspective we grasp it, in what phase of movement, etc. - every such detail is important. Lack of control over these aspects may cause the narrative we create to be far from our intentions.

The **establishing shot** is a very wide shot used at the start of a sequence. It's used to introduce the context in which the action takes place. Aerial shots are usually the preferred pick for these scenes, as they offer an unparalleled view of locations.

A **long shot** places the subject in perspective of its surroundings. This type of shot is commonly used to designate an action scene. It gives the viewer a sense of perspective that allows them to see the object in relation to its surroundings. The shorter version of this shot is known as the full shot. In this case, the subject fills the frame. This allows you to capture the overall appearance of the subject while showing the surrounding scenery.

**Medium shot** is used to show more of the subject's details, from the waist up. Since it covers the person's hands and part of their surroundings, it is the best way to capture the action in detail while keeping an overall view. Therefore, the medium shot is one of the most popular shot types. There are two main variants: medium-long and cowboy. The medium-long shot ranks between the long and medium shots. It covers the item from the knees up. The cowboy shot, on the other hand, frames the subject from the middle of the thigh, which was widely used in Western movies to fit a gun holster on the hips of cowboys.

The **medium close-up shot** frames the subject from the chest upwards. It is commonly used to capture the characteristics of a subject's face while also taking into account their surroundings. When filming a conversation, we use medium close-ups to include all interlocutors in the frame.

A **close-up shot** strongly frames the subject's face to focus on their emotions. Such shots make it easier for the viewer to establish contact with the person presented, as they eliminate distracting elements that distract from the gestures and reactions of the characters on the screen.



In an **extreme close-up shot**, the detail of the subject fills the entire frame. This shot is for emphasizing certain characteristics or behaviors of the hero. The most common use of this close-up will be to capture the expression in your eyes, mouth, or to show your hand in meaningful gestures.

A **double shot** includes two subjects in one frame. They do not necessarily have to be close together, nor do they have the same meaning. In many of these shots, one object is in the foreground and the other is in the background.

**Bird's-eye view** is a shot taken from an elevated point. It allows you to scale up and move. A point of view once available only to a select few filmmakers is now becoming popular among amateurs thanks to the proliferation of drones.

A **high angle** shot is taken pointing the camera down on the subject. This gives the effect of helplessness, the subordination of the object. In these types of shots, the camera can be anywhere from directly above the subject to just above the subject's line of sight.

The **eye level** shot is considered to be the most natural shooting angle. It allows for a neutral perception of the object. Since this is the perspective in which we usually see others, this angle of view can make it easier for the viewer to establish a relationship with the person being portrayed.

A **low angle shot** is taken from a point below the subject's eye line, looking upwards. This perspective makes the object look powerful and impressive with its stature. This angle can cause a visual distortion at high close-ups as this is not the usual point of view. For this reason, it is used in wider shots such as medium one.

The **worm's-eye view** camera angle snaps to the object from below. It is often used to bring out tall parts of the scenery, such as trees or skyscrapers, by placing them in such a perspective. This type of shots also emphasizes the subjective point of view of the observer.

An **over the shoulder shot** allows you to capture the subject behind another character. Typically, this shot includes the other character's arm and part of the head. It is mainly used for filming conversations as it leaves both people on the scene focusing on one of them.

A **point of view shot** shows what the main character is looking at. It is used to emphasize specific details or actions, e.g. in an emergency. Thanks to this





perspective, the viewer is placed in the role of the subject on the stage. As a result, it ties in more closely with the hero and the situation.



### Camera movement

Camera movements can add many shades of meaning to your footage, so it's important to be aware of how the viewer interprets different types of movement. Below, we'll cover some basic techniques to follow when recording.

The first of these techniques is **panning** when we move the camera from one side to the other. This is useful to reveal a larger scene, such as a crowd, or to reveal something in the background. When we speed up the movement a bit, we get a panorama in the blink of an eye, a shot very useful for transitions showing the passage of time or the distances traveled in a dramatic or comic way.

To tilt, imagine your camera is your head nodding up and down. **Tilts** are useful as a reveal technique, either to unveil something from top to bottom or the reverse.

**Zooming** is probably the most used camera movement as it allows you to easily get close to your subject without physically moving around. However, you need to be careful with this technique as enlarging reduces the image quality. If you are going to use the zoom, try to keep the movement as smooth as possible.



A **tracking shot** is one where the camera follows what is being recorded. Tracking shots are sometimes called "dolly" shots, and they can be differentiated further according to the direction they take. They usually follow an object in a horizontal plane. We probably know numerous scenes where interlocutors walk and the camera follows them. These shots are also useful for showing a stretch of road or scenery.

A **dolly shot** is one in which the camera moves towards or away from the subject. So instead of using the zoom to zoom in on the subject, the camera is actually physically moving in relation to the subject. The use of a dolly for this purpose facilitates smooth movement. In this way, we can build tension in a given scene or add weight and meaning to a selected object.

Finally, we have the **following shot**. This is the type of tracking shot where the camera continuously follows the movement of the subject. If we want to achieve a smooth following shot, steadicams and gimbals are key tools. Otherwise, every twitch of your hand will affect the quality of the shot. Long shots of this type, if taken correctly, produce impressive results.

In conclusion, do NOT move the camera without a specific target. You have to have a specific reason and intention for this. Pointless play with the zoom will result in unnecessary shakes and image jerks. These effects are discouraging for the viewer, so we should rather try to make the transitions smooth. Micro-jitters and rolling shutters become problematic when shooting handheld, but it is worth investing in a shoulder stabilization kit if you plan to shoot handheld with a small camera.

### Various matters

And now we want to give you some advice on how to avoid a situation in which, returning from a filming trip, you discover that you do not have enough material to edit an interesting movie.

- ❖ When choosing shots for filming, it is good to select shots from different angles: it can be several quick shots: e.g. one wide, one medium and close-up.
- ❖ When we find an interesting place, person, or experience, the right sequence must be established. The shot sequence is the foundation of the film narrative that unfolds in the images. If we don't have an interesting story to tell, it's better to put the camera aside until you have a good storytelling idea. Better to record a few interesting shots that fit together than a whole series of images that cannot be linked together.
- ❖ It's good to combine shots in terms of both focal length and composition, and use a wide-angle lens to get interesting close-ups or track down an interesting detail.



- ❖ When wandering from place to place, it is worth showing the passages as the scenery changes. This breaks the monotony of the narrative. The objects we pass, maps, road signs or the changing local colors provide great opportunities for such transitional shots.
- ❖ The story told should be divided into smaller parts. When shooting, you need to focus on taking pictures for one such sequence at a time. Later, when editing the recorded material, it will be possible to consider how these sub-stories fit into the larger context. Each sequence should focus the attention on a selected point around which the action with the participation of the filmed characters takes place. Different shots should serve this purpose, sometimes it is worth returning to a given scene to fill in the missing points of view.
- ❖ One must also bear in mind the necessary contextual information that the viewer must have in order to understand the story we are telling. Also in this case, there may be a need to return to the scene and complete the missing shots.
- ❖ It will not hurt to have more photos than we think we need during the shooting, some of them may turn out to be very useful at the stage of overall editing.

### Tips for shooting

- ❖ Remember to position the camera horizontally rather than vertically. The footage can be rotated during editing to arrange it horizontally, but then there will be black stripes on the sides, which is not aesthetically pleasing.
- ❖ The characters and the story told should always be in the spotlight. You can easily get carried away by spectacular views and forget about the main thread of the narrative. Beautiful scenery can grab the viewer's attention, but to maintain that attention, we need a compelling story and compelling characters.
- ❖ Stay on topic. When you film someone in action, focus on that. One of the most common mistakes made by inexperienced filmmakers is jumping from object to object, so no scene can sound out.
- ❖ No good film (including a documentary) has ever been made chronologically. When filming, we collect material for editing and source material for further processing.
- ❖ Try to get shots that no one else has taken. Plan your trip to places few have had a chance to visit, not to mention filming. Climb to the top, get up for sunrise, walk an additional kilometer, the mobilization of the group alone will provide interesting material for the mountain film. And of course, always remember the safety rules.



- ❖ Filming is very engaging and may leave little time to enjoy the places we visit during the trip. You have to be able to find time to put the camera down, even for a moment, even for a few minutes, and soak up the impressions without the help of a lens.



### How to put the different shots together to create a film?

The aim of editing is to create a film that forms a coherent and effective narrative. It will be possible when the editor has a specific concept of this story and selects the appropriate shots from this angle.

Before we start editing, we must be clearly aware of the goal we pursue when creating the film and to which group it is addressed. It is the editor who decides what the viewer will see, in what stage of the narration a given shot will appear and what will be taken of the film. He should know all the recorded footage, which is the 'raw material' of the resulting film story.

The Editing Process can be summed up in two stages:

- ❖ 'Raw' editing - combining the main elements into a continuous narrative. This way, the first main result is created, the movie is still unfinished, all the visuals are not finished yet, sometimes there is even music missing at this stage.
- ❖ Finishing - fine-tuning and polishing the first carded version to transform it into the final piece.

### The Shot and the Sequence - the fundamental units of editing

The way we combine different shots into a movie depends on the vision we have. Editing usually starts with editing various types of shots - opening shots, wide shots, medium shots, and close-ups. Their length will vary depending on the course of the





narrative. In a dialogue sequence, individual shots can last as long as the conversation itself, even several minutes. Dynamic scenes, on the other hand, can consist of shots lasting less than a second.

The challenge in editing is to assemble multiple shots in such a way that they create a seamless continuity in which the viewer will not see cuts, transitions, etc., unnecessarily distracting. In other words, the editor's work should remain hidden, unnoticed by the viewer.

A sequence is a series of shots that refer to the same activity. It's actually the cornerstone of visual storytelling. The sequences should be distinguished not only by visual variety, but also by compressing real time into dramatic time, in which the unfolding action draws the viewer in. The individual shots in the sequence bring in new information, which moves the story forward. Through the sequence of wide, medium and close-up shots, the viewer goes deeper and deeper into the narrative.

A good photographer can fit the whole story into one photo. The task of a filmmaker is to be able to think in terms of many images that are arranged in such a way as to increase the interest of the viewer, give insight into more details and skillfully direct his attention to important details. This is where the need for sequences arises.

When filming, we basically use the camera as an eye, moving the lens from image to image. These images should form a meaningful whole that carries meaning. When filming, you have to look at the editor's eye. How do I go from one image to the next? Oftentimes, you need to take many different shots for this purpose. Wide shots cover the entire area and serve well as an introduction to the scene. Medium shots show the characters on stage and their relationship to each other. Close-ups, on the other hand, allow you to highlight a detail, for example a face.

### The Cut

The main task of the editor is to tell a story. So why does the editor make cuts? The answer is simple - to take the narrative forward.

However, before we start cutting the collected material, we should bear in mind where the sequence comes from and in what direction it unfolds. Each cut should have a reason and a clearly defined purpose. Editing should develop the plot and make it easier for the viewer to follow it.

Why do we cut the fabric - to make it look nice? The answer is no. The purpose of this procedure is to process the material in such a way as to create a coherent story from it. Editing is a process that requires delicacy and precision. In the final phase, it





is always necessary to review and refine each sequence after its assembly. This can be done right after editing the scene, or later in the context of the whole.

The right reasons to cut:

- ❖ Maintaining interest, keeping the viewer's attention
- ❖ Giving the narrative an appropriate rhythm, different from the pace of the actual shot
- ❖ Maintaining continuity - then the transitions must be smooth and fluid

When does it become necessary to cut?

- ❖ To take the narrative further
- ❖ When the full shot no longer shows the course of the action
- ❖ To convey information to the viewer that is clearer than the other shot
- ❖ To show something new and keep the viewer interested
- ❖ To show what a person is thinking or feeling
- ❖ To remove a fragment that slows the plot down or adds nothing essential

Listed below are some of the most common patterns used when cutting together a scene:

- ❖ Conventional - we start with a wide shot, go to medium and further to close-up, thus getting closer and closer to the subject or character
- ❖ Revealing - We start with a close-up shot, then move on to a wider shot, thus revealing more information about the scene
- ❖ Matching the action - in the case of dynamic scenes, it requires great dexterity and precision so that the joints are not visible
- ❖ Overlapping layers - audio is ahead of video or video is ahead of audio; using blending or blurring transitions allows the editor to avoid straight, sharp cuts

## Pacing & Rhythm

Editing should be aimed at illuminating the course of the narrative rather than confusing it. Choosing the right shots, pace and transitions must make sense in terms of the scene. During the raw processing of the material related to the selected sequence, the editor compiles interrelated shots that allow for the continuity of the narrative. However, in the final stage of editing, it is important to refine this statement in such a way as to obtain a certain dramatic effect of the film story. This is achieved through an appropriate pace.

Momentum is when the editor changes the length of the shots, thereby influencing the emotional response of the viewer.



- ❖ The fast pace adds intensity to the narrative and creates excitement
- ❖ A slower pace is more conducive to relaxation and reflection

The load of visual information in a given shot determines how long it should be kept on the screen. For example, wide shots contain more information than close-ups, so when they appear on the screen for the first time, they usually take longer. Thus, the more information in the shot, the longer it should be on the screen to give the viewer the opportunity to penetrate the scene and discover the meaning of the images.

Moving shots are also kept longer as the viewer takes time to absorb the new information passing in front of the eyes.

On the other hand, a close-up contains less information than a wide shot, so it will be present on the screen for much less time. The same goes for static and repetitive shots. Once the viewer has seen the scene, you don't have to focus on it for a long time the next time.

To sum up:

- ❖ The more information there is in the shot, the longer it is on the screen
- ❖ Shots in motion longer than static
- ❖ The shot in the first scene is longer than in the repetition
- ❖ Sequences always of different lengths

Sequences with shots of the same length lack a rhythm. The rhythm requires changing the length of individual shots. The perception of rhythm is essentially intuitive. The viewer will feel when the film lacks rhythm, he will notice sudden transitions or noises, as well as unbalanced composition and defective photos. And yet the viewer should plunge into the story, be drawn into the fate of the heroes, without being distracted at every step by the presence of the camera or the lack of editing. While intuitive perception may turn out to be the main criterion for judging rhythm, to get a good result, you need to follow basic editing rules, such as choosing the best shots and smoothing transitions.

- ❖ **Straight cuts** - These are quick transitions from one shot to the next that give a sense of direct change. Such transitions can irritate and sometimes even mislead when there are no additional clues to facilitate the perception of change, despite the fact that our brains are adapted to such information processing.
- ❖ **Jumps** - we deal with these cuts when the visual information between the shots has changed little. In the aisle, these shots seem to shift. Such effects can be distracting and draw attention to the mount that should remain hidden.



- ❖ **Blurs** - on the other hand, this editing treatment smoothes the transition by making one shot fade out and the other out. In such a transition, the two shots seem to overlap. They are often used to show the passage of time or a change of location (or both). However, these transitions may turn out to be inappropriate in certain situations, for example in dialogue scenes that require straight cuts to maintain a sense of directness and closeness.

### Compressing Time

Thanks to editing, we can change the real time of events into the time of stage action, in other words, compress the time in which the events take place in reality. To this end, you should choose the fewest possible number of shots, using only the key shots that show the individual phases of a given process. However, this editing procedure should not confuse the viewer, but rather convey all the important information to keep the story engaged. When the editing cuts themselves attract attention, the viewer gets distracted, the magic of the film narrative disappears.

### Sound editing

Sound design is an essential part of making a movie. There are many techniques - Foley sound, background music, sound effects. Random, distracting background noises can ruin any great movie, including travel movies. That's why it's worth spending enough time finding and mixing a soundtrack that will suit your movie. Sometimes, however, silence is best, so let's let some pictures sound out without the music.





## Tips for better editing

- ❖ **Planning.** You need to have a vision of the project - how to start, what action during, what final? Who are the viewers? Each film production must have a vision and plan. You can put them in the form of a scenario that will serve as a guide.
- ❖ **Correct recording.** Much of the frustration with editing comes from the fact that the materials were not maintained properly. They turn out to be unavailable just when they are needed (disk failure, offline instead of online, etc).
- ❖ **Organization of work.** You need to be properly prepared to work with the media. This includes a clear structure of folders and subfolders, clip names, etc. You can, for example, color code clips so that you can recognize them quickly in the quick overview.
- ❖ **Content versus form.** We will not make up for the lack of content with a sophisticated form, although skillful editing will certainly improve its message and affect the emotional reaction of the viewer.

## Video editing software

If we are inexperienced in making movies, choosing the right editing program seems difficult. In fact, however, there are only a few elementary points to consider when making your choice.

- ❖ **Compatibility:** It is important that the program is compatible with the filming equipment
- ❖ **System requirements:** you need to check the specifications of the computer you will use for editing
- ❖ **Support:** Does it offer all the features we need?
- ❖ **Affordability:** the price of the program must not exceed our capabilities

We also need a tool that is relatively simple to use. In the case of comprehensive software, mastering the functions you need can be very time consuming and frustrating - professional software is expensive too. The right software should offer basic functionality such as importing, trimming, and sequencing. These functions should be intuitive to use. The program should also include more advanced features, such as color correction, creative transitions and cropping, which we do not need to use at the beginning. When choosing a video editor, you should also carefully evaluate your needs. For example, if we want to create a video travel guide, we will certainly need an editor with voice-over and text functions. The key functions useful in any case are the export of recordings in major formats and easy upload to various online platforms.



Here are some examples of free video editing software.

### Shotcut

Shotcut was created as a free video editor on Linux and then, after a few years, it was made available for Windows and Mac. Hence the slightly archaic user interface, which does not change the fact that Shotcut is still one of the best free video editors.

Certain functions of the program are easy and intuitive, such as the function of dragging multimedia files in order to import them into a given project. However, mastering the skill of using this video editor is quite difficult. For example, you have to configure the display yourself by adding the necessary modules. Perhaps the program's strongest point is the large selection of audio and video content filters. Once added, filters can be applied and adjusted to get the effect you want.

**PROS:** Professional editing features, 4k support, and no paid upgrades needed.

**CONS:** Originally designed for Linux, the interface was rather clunky. Some programming bugs, especially affecting color gradation and effects. The video track tends to lag and glitches when applying visual effects and adjusting colors. However, the pros are certainly outweighed by the minuses, so it's worth choosing Shotcut as your first video editor.

### iMovie

Apple's iMovie is free video editing software that is only available to iOS and macOS users. The app offers a range of basic video editing features and sharing options.

Many users find this app a great tool to start learning to edit with. This is called a non-linear editor, which means you can edit and cut graphics, music and videos without changing the original files. The software is used to trim movies, trim audio and video clips, reduce background noise, and improve sound quality. The app can also be used to add text, video and graphics overlays and color corrections. Files are easily exported directly to your computer or to Facebook and YouTube.

**PROS:** Autosave function, a "Share to YouTube" feature, built-in file management system.

**CONS:** The downside of the software is the lack of advanced video editing features, such as the ability to sync AV and drag-and-drop tools. To import your clips, you need to browse your computer's hard drive.





### DaVinci Resolve

Since BlackMagic acquired the software, they've made some serious modifications to it, to the point that it can now be considered a strong contender for video editing, colour grading, special effects and sound mixing, for an extremely affordable price. Actually, BlackMagic offers a free version, which caters for most needs of a budding (and not so budding) editor.

**PROS:** Powerful compositor, colour grader and sound editor, slick, intuitive and customisable interface.

**CONS:** Free version misses some modern features. The learning curve. Those familiar with something like Adobe's layer based approach to compositing will find Resolve's node based workflow a bit confusing. It's not hard to learn, but plan to spend a little time uncovering its power and rewiring your brain a little.

Some of the results of the workshops that we conducted on the basis of the above programme can be seen on the [digiHIKE website](#) and [Facebook group](#). We're looking forward to more contributions from young mountain filmmakers.



## **Resources and tools**



## Resources and tools

### Digital mapping

WIKILOC.COM

**Seven Ladders Canyon**

Seven Ladders Canyon Hiking trail in Timișu de Jos, Brașov (Rom...

- [AllTrails](#)
- [Wikiloc: Trails of the World](#)
- [Komoot – Cycling & Hiking Maps](#)
- [Hiking Slovakia - Tourist Map](#)
- [Mapy.Cz](#)
- [MapaTurystyczna.pl](#)





## Aerial photography



- [EU-wide rules for safety of drones](#)
- [Drone buying guide: How to choose the right drone for you](#)
- [How to build your own drone](#)
- [Gear for Aerial Photography](#)
- [Guide to the Top Drone Simulators on the Market for 2021](#)
- [Mastering DJI drone flying skills](#)
- [How to Fly a Drone: Beginner's Guide](#)
- [How to Use Drones to do Stunning Aerial Photography](#)
- [The complete beginner's guide to drone photography](#)
- [Tips for Doing Drone Photography and How it Improve All Your Images](#)
- [Drone Photography: A Guide to Capturing Images Like A Professional](#)
- [The beginner's guide to drone photography](#)
- [Tips For Getting Started With Drone Photography](#)
- [Drone Photography Tutorial: How to Take Killer Photos](#)



## Mountain filmmaking



- [Getting Started with Adventure Filmmaking](#)
- [Techniques of Shooting and Editing an Outstanding Travel Film](#)
- [Simple Techniques for Shooting Better Travel Videos](#)
- [How to make a brilliant adventure travel film](#)
- [Seven Rules for Film and Video Editors](#)
- [Advanced Video Camera and Editing](#)
- [Make awesome video with 12 Best Travel vlogging tips](#)
- [Best Video Editing Software for Creators](#)
- [Best Video Editors for Slow Computers](#)
- [Editing with DaVinci Resolve? Pros vs Cons](#)
- [DaVinci Resolve 15.2 review](#)
- [Travel Filmmaking: Are You Doing It Right?](#)
- [Adventure filmmaking](#)
- [How to make an award-winning adventure film \(without budget or crew\)](#)
- [Techniques of Shooting and Editing an Outstanding Travel Film](#)
- [How to Make a Travel Video That People Actually Watch](#)



