Introduction to photogrammetry in journalism: capturing your world in 3D

Course Dates: June 27-July 24, 2022

Instructor: Ben Kreimer

About the course

Welcome to the Knight Center's new MOOC, **"Introduction to photogrammetry: Capturing your world in 3D,"** organized by the Knight Center for Journalism in the Americas. During this four-week massive open online course, which will be held from **June 27-July 24, 2022,** students will learn how useful photogrammetry is for capturing three-dimensional digital replicas of landscapes, structures, and objects for three-dimensional immersive journalism and forms of storytelling.

Watch the video below and read on for more details, including instructions on how to register.

Goal

For the next four weeks, you will learn:

-What photogrammetry is and how the process works
-When to use photogrammetry to complement your journalistic work
-How to do basic photogrammetry capture and processing
-How to do basic publishing of photogrammetric 3D models
-Two-dimensional applications of photogrammetry

Who can enroll? (Who is this Course for?)

Digital journalists, newsroom leaders, photographers, data journalists, immersive media makers, drone operators, and technologically curious storytellers.

Objectives

Upon completion of this course you will be able to add photogrammetry to your digital journalism toolbox and possess introductory-level knowledge of the photogrammetric process to put toward your own projects.

Tools/Applications Required

No tools or applications are required.

Optional Tools
During modules three and four, an Android or iOS smartphone, or a digital camera and computer, will allow you to follow along and try some of the suggested photogrammetry capture and processing exercises.

We will provide a demonstration dataset so you can try the processing step without capturing your own images.

We will use the mobile app and browser-based photogrammetry capture and processing service called Polycam for these exercises (but not required). Users create an account that provides access to Polycam's web browser service and mobile app, making the platform accessible across most devices.

How the course works

First of all, note that this is an asynchronous course. That means there are no live events scheduled at specific times. You can log in to the course and complete activities throughout the week at your own pace, at the times and on the days that are most convenient for you.

Despite its asynchronous nature, there are still structures in place for the duration of the course.

The material is organized into four weekly modules. Each module will be taught by **Ben Kreimer,** an independent creative technologist specializing in finding enduring journalistic and storytelling applications for photogrammetry and other emerging technologies. Ben will cover a different topic each week through videos, presentations, readings and discussion forums. There will be a quiz each week to test the knowledge you've gained through the course materials. The weekly quizzes,

and weekly participation in the discussion forums, are the basic requirements for earning a certificate of participation at the end of the course.

This course is very flexible, and if you are behind with the materials, you have the entire length of the course to complete them. We do recommend you complete each of the following before the end of each week so you don't fall behind:

- Video lectures
- Readings and handouts/exercises
- Participation in the discussion forums
- Quizzes covering concepts from video lectures and/or readings

The course is divided into four weekly modules (Course outline)

Introduction Module: Welcome to the course

This module provides a video introduction to the course, outlining the topics covered in the four modules. After watching the video, please explore the rest of the introductory materials, including the syllabus, information about optional tools, and recommended readings.

This module will cover:

- An introduction to how the photogrammetry capture process works through two use cases
- An introduction to how photogrammetry is used for augmented reality storytelling
- An introduction to the mapping potential of drones and photogrammetry

Module 1: Introducing photogrammetry (June 27 - July 3, 2022)

The photogrammetry process dates back to 1849, and was originally used for map making. Today it's still used for making maps, as well as many other types of two-dimensional and three-dimensional visuals. In this module we will explore how photogrammetry works, and see examples of how it is used in journalism and other industries.

This module will cover:
- The origins of photogrammetry
- A high level overview of the photogrammetry process from start to finish

- Inspiring journalistic use cases for photogrammetry
- Inspiring use cases of photogrammetry from other industries

Q&A with guest speaker Chad Davis, chief innovation officer From Nebraska Public Media in Lincoln, Nebraska

Q&A with guest speaker Uttam Pudasaini, a spatial technologies specialist and director of Nepal Flying Labs

Module 2: Strategizing: When and how to tell stories with photogrammetry (July 4 - 10, 2022)

Like any tool, photogrammetry is great at performing some tasks and bad at others. In this module we will focus on the storytelling strengths of photogrammetry, and how they can best serve you and your storytelling needs.

This module will cover:
- Photogrammetry for immersive media and two-dimensional media
- Using photogrammetry for environmental and spatial storytelling
- Using photogrammetry for structural and object-based photogrammetry

Q&A with guest speaker Alexey Furman, freelance photojournalist, game designer, creative producer, and photogrammetry photographer from Ukraine

Q&A with guest speaker India Johnson, owner of UAVistas LLC in Cleveland, Ohio, working in photogrammetric mapping, conservation, OpenDroneMap, and with a focus on community outreach among women and girls

Module 3: Introduction to photogrammetry capture (July 11 - 17, 2022)

There is no better way to learn a new tool than to use it yourself. In this module we will cover some of the practical do's and don'ts of photogrammetry capture with hand-held cameras and drones, including guided exercises using the Polycam app. We will also explore LiDAR technologies, and look at sources that use pre-existing photogrammetry and LiDAR data.

This module will cover:

- Planning and executing a handheld camera (or smartphone) photogrammetry shoot
- Planning and executing a drone-based photogrammetry shoot
- Open source datasets, crowd sourced data sets, and collaborative projects
- An introduction to LiDAR technologies and open source LiDAR datasets

Optional: Students can use a two-week free trial of Polycam during this module.

Q&A with guest speaker Faine Greenwood, UAS (drone) consultant and senior spatial data scientist at MassDOT's Drone Pilot Program

Q&A with guest speaker Khadija Ali, a drone consultant and geographic information systems analyst in Tanzania

Module 4: Introduction to photogrammetry processing and publishing photogrammetric content (July 18 - 24, 2022)

In this final module we will go through the processing stage of photogrammetry, and see how the photogrammetric content we've made can be quickly shared with audiences. We will also step back and consider how photogrammetry is a foundational process and tool within the broader context of emerging 3D technologies and platforms.

This module will cover:
- Photogrammetry processing tools
- Basic content delivery and distribution
- Looking to the future: volumetric video, the metaverse etc.

Q&A with guest speaker Mohammed Maisha, an Open Skies Fellow. The Open Skies Fellows program is led by OpenMap Development Tanzania in collaboration with Uhurulabs and the Humanitarian OpenStreetMap Team.

Certificate of Completion

A certificate of completion is awarded by the Knight Center for Journalism in the Americas to attest to the participation in the online course.

There's no form to apply for the certificate of completion. At the end of the course, the Knight Center team will verify all students and all activities required to qualify for the certificate of completion.

After verifying that students have met the course requirements, the Knight Center will send students a message confirming that they have met the requirements and are eligible for the certificate.

To be eligible for the certificate of completion, students must:

- Listen to the weekly video classes and read the weekly readings.
- Complete weekly quizzes with a minimum score of 70%. (You can retake the quizzes as many times as needed. Only the highest score will be recorded.)
- Create OR reply to at least one discussion forum each week.

There are no formal credits of any kind associated with this certificate. The certificate is issued by the Knight Center for Journalism in the Americas only to certify participation in the online course.