

# Alexander Lelidis

SOFTWARE ENGINEER · RESEARCHER · GENERAL COMPUTER SCIENTIST

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“There are two major products that come out of Berkeley: LSD and UNIX. We don't believe this to be a coincidence”  
Jeremy S. Anderson

## Skills

<b>Programming</b>	Python, javascript (ES6), TS, C/C++, Ruby, JAVA, PHP, Assembler (mios, x86), GLSL, Bash
<b>Databases</b>	SQL, MongoDB, couchDB, pouchDB, postgres
<b>Libraries</b>	PyTorch, Tensorflow, React (Native), Django, tornado, flask, angular, Redux, HTML5, CSS3, Node.JS, leaflet, mapbox, ros, bootstrap, jquery, Three.js, loadash, boost, cgal, igl
<b>General</b>	SVG, openGL, WebGL OSM, OSG, mapbox, OSRM, CAD, ESRI AGO, Metabase
<b>Languages</b>	English (Full professional proficiency) , German (native language), Spanish (4 years of high school classes), Bulgarian (basic knowledge)

## Work experience

### ETH Zurich / Disney Research Studios

Zurich, Switzerland

RESEARCH ASSISTANT AT CGL/DISNEY

Fall. 2020 - now

- Development of production-level deep learning code in collaboration with Disney.
- Research of smoke stylization method and develop of a Houdini plugin for neural smoke processing.

### ESRI

Zurich, Switzerland

SOFTWARE ENGINEER

Spring. 2019 - Fall 2020

- Development of urban planning software in the 3D space in the browser using React and the ESRI Js API
- Research, design and implementation of streetview integration in ARCGIS Urban resulting in two opensource packages on NPM
- Planning and execution of telemetry gathering using AWS-Redshift and Metabase increasing user feedback

### Antavi GmbH

Zurich, Switzerland

SOFTWARE ENGINEER

Spring. 2016 - Winter 2018

- Design and development of command, control and communication systems in React with live updates via pouchdb
- Scalable Backend and API design in Express running on AWS
- Processing and visualization of raw GIS data analysis using Mapbox and OSRM

### Undergraduate Research, Dept. of Information Technology and Electrical Engineering

Zurich, Switzerland

RESEARCH ASSISTANT AT IFE

Fall 2014 - Spring 2016

- Getting insights of big mobile crowd GPS data through the implementation of trajectory analysis in Python
- Visualization of complex relations by creating web-based software for crowd analysis in Js
- Research and development of new analysis methods using GPS data to provide crowd flow direction estimates

### WeltWeitBau GmbH

Berlin, Germany

SOFTWARE ENGINEER

Fall 2012 - Spring 2016

- Development of software civil engineering tools in Java and C++
- Reducing software quality assurance time by implementing continues integration tests with Selenium
- Teaching training courses for the utilisation of the company's products to new clients

## Education

### ETH Zurich

Zurich

MASTER OF COMPUTER SCIENCE (1.3)

Sep. 2017 - Sep. 2020

- Joint Thesis with the University of Cambridge
- Focus: Machine Learning and Security

### Technical University Berlin

Berlin

BACHELOR OF COMPUTER SCIENCE (1.9)

Oct. 2012 - Apr. 2016

- Exchange program at ETH Zurich
- Focus: Computer Graphics and Computer Vision

## Research

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### Invisible to Machine Perception: Attacking Pose Estimators with Attribution Methods

MASTER THESIS

Zurich, Switzerland

Mai. 2020

### Geometry Representations for Big Geometry Data with Unsupervised Feature Learning

BIG DATA AND SMART COMPUTING (BIGCOMP), 2016 INTERNATIONAL CONFERENCE

Hong Kong, China

Jan. 2016

### Structure-aware Surface Reconstruction with Sparse Moving Least Squares

BACHELOR THESIS

Zurich, Switzerland

Aug. 2015

## Projects

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### Asteroid field simulation

UNIVERSITY

C++, CGAL, OSG

<https://alexus37.github.io/asteroidField/>

- Realtime N-Body simulation in 3D space with collisions detection and physically correct response computation
- Numerical estimation of gravitational forces using the C++ library CGAL
- Visually pleasing rendering by leveraging OpenSceneGraph

### tripTrackr

PRIVATE

Ruby on rails, js, OSG

<https://www.triptrackr.de/>

- Full-stack development of a travel app for Android and IOS, where users can create a personal webpage with their travel trajectory
- Backend development with Ruby on rails and deployment on AWS infrastructure

### WebGL interface for the NORI raytracer

PRIVATE

Python, Django, three.js

<http://alexus37.github.io/NoriV2Webinterface/>

- Web-based modelling tool and editor for scenes used as input for the physical-based raytracer Nori
- Including a full ecosystem with user management, rest API and server-side rendering running with Django
- Real-time rendering preview using WebSockets with an angular frontend leveraging three.js

### Thermal augmented reality chess

UNIVERSITY

C++, Python, ROS

<http://alexus37.github.io/pdf/report.pdf>

- Connecting a RGB image stream with a thermal image stream to transform every surface to a touch screen
- Using the RGB camera to track augmented reality marker and use OpenGL to render a chess game