

Nick Hallahan

Software Engineer

Passionate about all things maps. 🌍

Santa Cruz, CA

503-454-6543

nick@theoutpost.io

<http://theoutpost.io>

Experience

Technical Program Manager — Hivemapper

San Francisco, CA — 2022

Built dashcams that pay users crypto to record street imagery. Role involved bridging the gap between product development and the management of the engineering process.

Senior Software Engineer — VECKTA

Remote - San Diego, CA — 2021-2022

At VECKTA we built an online marketplace for microgrid Distributed Energy Systems.

- Built a full stack web application facilitating the search and negotiation process of industrial scale energy projects.
- Transitioned the engineering team and codebase to TypeScript, Next.js, and Prisma.
- Integrated continuous deployment with Vercel.

Maps Platform Software Engineer — Apple, Inc.

Cupertino, CA — 2017-2021

At Apple, I worked on both the OpenStreetMap team, as well as the internal macOS map editing application for Apple-curated data.

OpenStreetMap Data Team - 2017-2018

- Built internal plugins for the JOSM OSM editing application.

- Built the data processing pipeline application using Apache Airflow and React.
- Contributed to the open-source OpenStreetMap data processing library [atlas](#) .

Maps Editing Application Team - 2018-2021

- Built full editing support of POIs and related data.
- Implemented support for rendering the Mapbox Vector Tile format for visualization of large datasets.
- General Swift code-base maintenance.
- Supported various other internal data formats.
- Maintained the API and bridge between native Swift and JavaScript apps.

My team's application is currently being used by thousands of map editors and analysts on a daily basis. This experience has provided me with a deeper understanding of how map data works at scale, particularly regarding human editing, automated topological correction, and the transformation and conflation of data coming from different sources.

Software Developer — The Outpost, LLC

Sacramento, CA — 2016

Contracted as a software developer for various GIS clients and software companies. Services included: Cross-Platform C++ Development, Android Development, Documentation, and Node.js APIs. Continued support for POSM and OpenMapKit.

Software Developer — SpatialDev

Seattle, WA — 2014-2016

Developed GIS-centric Android and web applications for clients such as the American Red Cross, the Bill and Melinda Gates Foundation, and other NGOs. Created and maintained tools for both commercial use and the open source community. Projects include:

- Libraries allowing faster rendering of several vector data formats on Leaflet maps.
- APIs and ETLs using NodeJS and PostGIS.
- A fully stateful and perma-linked map viewer utilizing AngularJS and Leaflet.

- Dynamic vector tile, GeoJSON, and image tile APIs in NodeJS, cached and scaled on Amazon Web Services.
- Several Android applications.

GIS Intern — Oregon Watershed Enhancement Board

Salem, OR – Summer 2013

Digitized features and details of watershed restoration projects into OWEB's geodatabase using ESRI ArcGIS Desktop 10.1. Digitization was discerned from provided PDFs and imagery alongside written documentation.

Software Engineering Intern — Elemental Technologies

Portland, OR – Summer 2012

Created an Audio Mixer user interface with perceptual relevance that has been integrated into the Elemental Server and Elemental Live video transcoding products. Created an HTML5/Flash Video player that allows sideby-side playback of modern adaptive bitrate streaming technologies in the browser (HLS, HDS, RTMP, FLV).

Web Developer — Freelance

Portland, OR – 2011-2012

Created AJAX Web Applications. Projects include a logging system for a fitness competition (PSU Rec. Center), an equipment reservations database (A/V), as well as a PDF generating web application for track and field construction measurements.

Audio/Visual Technician — Portland State University

Portland, OR – 2010-2012

Setup and monitored A/V installations for PSU events. Technical assistance for faculty, staff, and students. Checked out equipment for faculty and supported A/V installations in classrooms.

Undergraduate Research Assistant — Portland State University

Portland, OR – 2011

Developed an Eclipse Annotation Plug-In that assisted PhD students with their work regarding the linkage of device driver source code to PDF specifications.

Engineer's Assistant — House of Blues Studio

Encino, CA – 2008-2009

Setup and teardown of recording sessions. Recording console patching and maintenance. Reception and guest hospitality.

Audio Engineer — Freelance

Chicago, IL – 2007-2009

Produced and engineered albums for rock and jazz groups. Recorded and edited audition CDs for classical musicians. Recorded concerts for the Oistrach Symphony Orchestra.

Sound Reinforcement — DePaul University

Chicago, IL – 2006-2008

Setup P.A. and monitors for Jazz Big Bands, Jazz Combos, Composers' Forum, and various other university related performances. Recorded and edited performances.

Education

Oregon State University, College of Earth, Ocean, and Atmospheric Sciences

Corvallis, OR

- Graduate Certificate in Geographic Information Science, 2013
- GPA: 3.96

Portland State University, Maseeh College of Engineering

Portland, OR

- Postbac., Graduate Prep., Computer Science, 2012
- GPA: 3.61

DePaul University, School of Music

Chicago, IL

- B.S. Music & Sound Recording Technology, Cum Laude, 2008
- Minor in Electronics
- GPA: 3.5

Software

Programming Languages

My focus has been on desktop and mobile application development, but I also work on backend services and libraries. I am comfortable building with schema-based binary formats such as Protocol Buffers and Flatbuffers, as well as custom flat structures and encodings.

- JavaScript / TypeScript
- Rust
- C++
- Java
- Swift
- Solidity

Web Frameworks & Tools

My web development work has typically been full-stack—including databases, APIs, front-end application, design, UI frameworks, CSS, etc.

- Node.js
- React
- Vue
- Next.js
- AWS
- Google Cloud

GIS

Creating maps with geospatial data is where I feel most at home. I enjoy using both proprietary and open source solutions. I may be scripting with a low-level GIS library, but sometimes an application like ArcGIS Pro or QGIS is the right tool for the job. I have worked with much of the underlying tools in the OpenStreetMap software stack.

- OpenStreetMap
- ArcGIS
- Pix4D
- QGIS
- Tippecanoe
- Tilemaker
- MapboxGL / MapLibre GL
- GDAL



Open Source

I have contributed to the following open source projects:

- PlanetVectorTile
- MapboxGL
- Leaflet.MapboxVectorTile
- POSM - Portable OpenStreetMap
- OpenMapKit
- LeafletPlayback

Drone Mapping

Licenses:

- FAA Part 107 Small UAS Remote Pilot Certificate 
- Special Flight Operations Certificate - Remotely Piloted Aircraft System 

My drone drone mapping gear includes:

- DJI Mavic 3 Enterprise with RTK
- 2 Emlid Reach RS2+ for setting Ground Control Points and use as an RTK/PPK base station.

I am comfortable working in Pix4D software, and can create ortho-mosaics (GeoTIFF and web maps), LAS point clouds, and meshes.