Alexander Hoekje List

portfolio http://alist.github.io
email alist@alum.mit.edu
engineering Swift, C++, Python, Node.js, Obj-C, Ardunio, Java, Eagle CAD

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Experience

Autonomy Software Engineer Boeing Research and Technology 08/2019 - 06/2020

- Matured in-house avoidance software for integration into subsidiary's detect and avoid solution. Transitioned code to C++11 for maintainability and safety, introduced unit testing and code profiling.
- Studied RTCA DO's including DO-365 for unmanned aircraft performance standards, and code certification standards including DO-178C, AUTOSAR and Boeing-specific standards to contribute to subsidiary's code and style standards, and provide feedback on interface control documents.
- Coordinated software development sprints, mentored teammates on good C++ coding practices, identified and helped secure systems against IT threats.

Research Assistant MIT ICAT Lab 1/2018 - 8/2019

- Masters student in AeroAstro department's International Center for Air Transportation working under Professor R. John Hansman.
- Delivered thesis titled "Assessing Multi-rotor UAV Controllability in Low Altitude Fine-Scale Wind Fields."
- Introduced "control margin" metric to assess unmanned aerial vehicle control.
- Developed model by the decomposition of torques involved in a vehicle's stability.
- Implemented experimental test platform on quadrotor UAV for metric validation.

Teaching Assistant MIT Computer Language Engineering 9/2018 - 5/2019

- Assisted instruction for two courses on compiler "computer language" engineering: for a static C-variant language (Professor Martin Rinard), and for a dynamic Python-variety language (Professor Michael Carbin).
- Delivered recitations, wrote and graded exams, ran tutorials on debugging using LLDB, and helped students move through issues in their own compilers.

Part-time Mobile Software Engineer, iOS Ideaflow Inc. 5/2017 - Present

- Contributed several major releases, including the support of iOS 13.
- Overhauled the application to alleviate technical debt by enforcing encapsulation within the codebase.
- Architected and collaborated towards a web-synchronization subsystem.
- Engineered a formal grammar and parser for Ideaflow's relational note-taking App.
- Conducted several employee interviews and provided longterm project guidance.

Contractor E55 Inc., Gigster Inc., MANNA Inc., CodePath LLC 4/2015 - 1/2017

- Engineered a low-dependency Objective-C framework containing image recognition APIs for iPhone Apps, enabling E55's customers to integrate in under an hour.
- For Gigster, built a realtime navigation module with off-route detection and Dijkstra route optimization for the "GoKid" kid's carpool App, available on the iPhone App Store. Developed four social media applications with pictures and video.

For MANNA (defunct):

- Designed an algorithm optimizing drone flight paths over airspace of individual property holders. Test-driven development process sped implementation in C++.
- Implemented a means to register property ownership and lease on a blockchain using the Google S2 space partition and smart contracts.
- Engineered a delivery simulator and visualizer in Node.js and JavaScript.

For CodePath (an educational organization):

- Empowered twenty designers to implement their designs as native iPhone applications by teaching the Swift programming language.
- Proctored study sessions solving hundreds of bugs, delivered multiple lectures, wrote online tutorials, and guided group projects.

CEO and Co-founder Headtalk Inc. 1/2014 - 9/2015

- Raised $140k in venture capital.
- Participated in Techstars' Boston accelerator, culminating in a "Demo Day" presentation to approximately 500 people.
- Engineered usemagnet.com, PCBs and the iPhone App for Magnet bracelet.
- Led team of three engineers and three designers to deliver Apps for Android and iOS, two wearable devices and a Kickstarter campaign.
- Coordinated Headtalk's acquisition in September 2015.

Swÿp Lead MIT Media Lab, Fluid Interfaces Group 9/2011 - 12/2012

- Created Swÿp, allowing files to be dragged between touch screen devices.
- Engineered send-ahead thumbnail system to improve UX during payload transfers.
- Integrated Swÿp into the LuminAR augmented reality light fixture.
- Led a three engineer team to Sponsor Week, delivering seven articles in the press.

Co-founder ExoMachina Inc. 1/2009 - 12/2013

- Built the Fibromyalgia App with psychiatrist co-founder, helping hundreds of people suffering from the chronic pain disorder track their symptoms.
- Built Domo.io, a website mapping struggling MIT students' questions with advice from peer volunteers. The Domo team included three engineers, a designer and one psychologist. Product was delivered in time for MIT final exams in Spring 2013.

Education and Selected Courses

Massachusetts Institute of Technology:

Masters of Engineering in Computer Science 2018 - 2019

- Intelligent Multimodal User Interfaces
- Feedback System Design (Introduction to Controls)
- Principles of Autonomy and Decision Making

Bachelor of Science in Computer Science 2011 - 2017

- Computer Language Engineering
- Intermediate Computer Algorithms
- Linear Algebra
- Differential Equations
- Elements of Software Construction
- Medical Device Design
- Aerospace "Unified Engineering" core curriculum

Flight Experience

Private Pilot Certificate: 121 hours, based at KRNT 2018 - present

→ Current training: instrument rating, tailwheel endorsement.

Achievements

Apple Design Award, Recipient for Mosaic.io 6/2013

Bump API contest, Honorable Mention for peer to peer payments with a bump. 2/2010

Developer of Top-20 Navigation App on App Store, PlaceBook. 1/2009