RICHARD SLOCUM

Slocum.Richard.K@gmail.com 703-973-1983
www.richardslocum.com San Francisco, CA

EDUCATION

PhD in Civil Engineering - Geomatics **March 2020**
Oregon State University Corvallis, OR

B.S. in Mechanical Engineering **May 2011**
Virginia Tech Blacksburg, VA

RELEVANT WORK EXPERIENCE

Sensor Lead September 2022 - Present
Waabi AI, San Francisco, CA

- Lead sensor engineer responsible for lidar, camera, radar, and gnss-ins sensors
- Responsible for the selection and evaluation of next generation sensors; collaborating cross functionally to ensure the selection meets requirements and needs
- Designing, executing, and presenting results from sensor characterization experiments
- Working cross functionally with all teams that interact with or ingest sensors: including integration, compute, firmware, perception, simulation, calibration, leadership, and safety
- Responsible for troubleshooting any sensor issues on vehicle, from going in the field and collecting data, through decoding raw data packets and visualizing / analyzing any results

Hardware Engineer August 2020 - September 2022
Argo AI, Palo Alto, CA

- Tech lead for radar and microphones
- Responsible engineer for short range lidar
- Lead communication with manufacturers and cross functional teams to ensure successful integration of sensors onto the vehicle platform and into the processing pipeline
- Developed simulated sensor placement tools to quantify how sensor placement and performance impacts perception
- Frequently presented and communicated clear, concise updates and results to management and external customers

Graduate Research Assistant September 2015 – August 2020
Oregon State University, Corvallis, OR

- Designed and built custom geospatial mapping systems, including:
  - Autonomous Surface Vessel (ASV) with single-beam sonar for underwater mapping
  - 3D printed pan-tilt for polarimetric gigapixel imaging for infrastructure inspection
  - Unmanned Aerial System (UAS) based lidar system to generate accurate 3D maps
  - UAS-based camera mapping platform with custom payload for coral reef mapping
  - Gigapixel imaging system on a custom CNC for high resolution artwork digitization
- Developed and deployed web interfaces for geospatial data dissemination and analysis
- Lead experiments with multidisciplinary teams, often troubleshooting problems in the field

- Performed research focused on leveraging machine learning algorithms to improve accuracy of coral reef mapping from UAS
- Presented research and taught geospatial fundamentals at various conferences, educational seminars, and during geospatial outreach sessions at local elementary schools

Founder July 2014 – April 2016
Cormorant Analytics, Fairfax, VA

- Conceptualized, manufactured, and integrated a prototype, multiple camera RGB sensor for coincident multi-view stereo 3D reconstruction and surf zone time series mapping
- Developed algorithms and procedures to process imagery and visualize results from prototype sensor for oceanographic analysis
- Transitioned sensor technology and processing methods to government client, which has grown to become a successful program within the U.S. Army Corps of Engineers
- Built from scratch and tested low-cost prototype UAV and USV platforms with custom sensor payloads for mapping topography and bathymetry
- Leveraged printed circuit board design, 3D Printing, CNC Router, CO2 laser techniques to manufacture custom engineering solutions
- Presented status updates and technical information to non-technical audiences

Lidar Scientist December 2012 – July 2014
Geospatial Intelligence and Analysis (GIA), Alexandria, VA

- Designed novel remote sensing equipment for the US government partners and led field data acquisition, data analysis, and presentation of results
- Developed procedures to automate acquisition, processing, co-registration, analysis, and visualization of lidar data to monitor beach erosion

Research Scientist Summer 2010 and May 2011-December 2012
U.S. Army Corps of Engineers - Field Research Facility, Duck, NC

- Lead data collection and data analysis efforts of lidar, camera, and radar systems for oceanographic research

---

SOFTWARE EXPERIENCE

- **Data acquisition, processing and analysis:** Python (preferred), Matlab, C/C++ (basic)
- **Collaborative software development:** Github
- **SfM processing:** Agisoft Metashape(PhotoScan), Pix4D
- **Web Development:** HTML, JavaScript, CSS
- **CAD:** Autodesk Inventor, Autodesk Fusion 360
- **Electrical schematic and PCB design:** Eagle, KiCAD