Dennis Melamed

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EDUCATION

**Carnegie Mellon University, Robotics Institute**

* Master of Science in Robotics, Prof. Kris Kitani (August 2019 – July 2021)
* Selected Coursework: *Kinematics, Dynamics & Control; Localization & Mapping; Reinforcement Learning*

**University of Minnesota, Dept. of Electrical and Computer Engineering**

* B.S. Computer Engineering, Summa Cum Laude with Distinction (Sept. 2015 – May 2019)

### Thesis: *Indoor Micro-UAV Navigation with Minimal Sensing* (Profs. Volkan Isler & Derya Aksaray)

### IEEE-Eta Kappa Nu – Omicron Student Chapter – Vice President 2018-2019

SKILLS

**Programming Languages:  
Robotics Tools:**

**Other Tools:**

**Languages:**

Python, C++, Embedded C, MATLAB, Java, Ruby

Robotic Operating System, Gazebo, V-REP, OpenCV, Keras, PyTorch

Unix ecosystem, Windows kernel development, CUDA/openACC, AWS, XPatch

English (native), Russian (native), Spanish (proficient)

# WORK EXPERIENCE

**Kitware, Research & Development Engineer**  *2021 - present*

* Designed systems to identify biases in xView2 dataset, improving satellite damage detection networks
* Implemented confidence-aware detectors to improve re-ID performance in challenging scenarios

**Nextdroid Robotics, Software Engineering Intern** *June - Aug 2018*

* Achieved sensorless high-precision motor speed control for subsea robotic platform
* Co-developed high-accuracy image processing on military hardware for aerial scene understanding

**National Instruments, Software Engineering Intern**  *June - Aug 2017*

* Implemented network interfaces for measurement device drivers to maintain stability on newer platforms
* Developed encryption systems to allow first-in-company secure device firmware/driver communication

**Robotic Sensor Network Laboratory, Research Assistant** *2015-2019*

* Developed GPS-denied micro-UAV platform for agriculture using ROS, C, and V-REP simulation
* Designed and trialed computer vision system for micro-UAV control using low-resolution imaging

**Department of Civil Engineering, Computer Science Research Assistant** *2015-2016*

* Parallelized state-of-art wave propagation algorithms to speed concrete simulations by 10x
* Designed MN Dept. of Transport user interfaces to ease ground-penetrating radar data analysis

MORE PROJECTS

**Micro-UAV Agricultural Monitoring Platform, U of MN** *2017-2019*

* Designed lightweight (<50g) fully autonomous system for data collection in restricted environments

**Gesture Based Micro-UAV Control, U of MN**  *Sept - Dec 2017*

* Architected & developed high precision gesture tracking system to control micro-UAV flight

PUBLICATIONS

**Learnable Spatio-Temporal Map Embeddings for Deep Inertial Localization** *2021 -2022*

* Learned system to introduce map constraints into odometry-only settings (to appear at IROS 2022)

**Inertial Deep Orientation-estimation and Localization, CMU** *2019-2020*

* State-of-the-art deep-learning method for IMU-only pedestrian localization (AAAI 2021)