# **Dennis Melamed**

EDUCATION

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**www.dennismelamed.me**

**University of Minnesota: Minneapolis, MN** 2015- May 2019 (expected)

* College of Science and Engineering (Honors)
* B.S. Computer Engineering: 3.848 GPA
* Honors Thesis: “Indoor Micro-UAV Navigation with Minimal Sensing” (in progress)
  + Advisors: Professor Volkan Isler & Professor Derya Aksaray
* Relevant Coursework
  + Sensing & Estimation in Robotics, Intelligent Robotic Systems, Image Processing, Microcontrollers

RESEARCH INTERESTS

* Control strategies for autonomous agents with extremely limited sensing abilities
* Micro-robotics for outdoor monitoring

# HONORS & AWARDS

* 5 Semester Dean’s List- College of Science and Engineering
* Carl E. and Ethel A. Swanson Electrical Engineering Scholarship
* University of Minnesota Gold Scholar
* University of Minnesota Presidential Scholar
* National Merit Finalist

# RESEARCH & TEACHING EXPERIENCE

**Research Assistant, Robotic Sensor Network Lab, University of Minnesota** 2015-present

* Developed system for autonomous flight down corn rows (in progress)
* Developed micro-UAV platform (<50g) with camera and inertial measurement

unit payload for restricted/indoor environments

* Research in autonomous robotic rendezvous problems in simulation

**Research Assistant, Department of Civil Engineering, University of Minnesota** 2015-2016

* Parallelized state-of-the-art wave propagation algorithms for 40x reduction

in runtime

* Designed user interface for MN Department of Transportation for ground penetrating

radar experiments

**Eta Kappa Nu Tutor** 2017-present

* Guided problem solving on challenging concepts in computer science/electrical

engineering for lower division students

# TECHNICAL PAPERS

**A Gesture Based Programming Scheme for the Crazyflie Micro-UAV** Winter 2017

* Full programming pipeline based on ROS for recording UAV flight paths
* User provides input using a gesture language
* Available here: <https://dennismelamed.me/projects.html>

# WORK EXPERIENCE

**Software Engineering Intern, Nextdroid Robotics, Boston MA** Summer 2018

* Achieved sensorless high-precision motor speed control for subsea robotic platform
* Co-developed high-accuracy image processing pipeline on military hardware
* Designed data storage architecture using Ruby/AWS for secure client data processing

**Software Engineering Intern, National Instruments, Austin TX**  Summer 2017

* Implemented network interfaces for measurement device drivers
* Developed encryption schemes for device firmware/driver communication

MEMBERSHIPS

* Institute of Electrical and Electronics Engineers – Student Member
* Eta Kappa Nu Honors Society – Chapter Vice President
* Association for Computing Machinery – Student Member

OTHER PROJECTS

**iRobot Create Autonomous Navigation** Fall 2015

* C++ implementation of autonomous navigation algorithm “bug2” with contact sensor

**Open Source Robotic Macro Recording Package** 2014-2015

* Java software for FIRST teams for recording/playback of autonomous movements
* Available to new teams as open source package to speed development

CERTIFICATIONS AND SKILLS

* Programming Languages:
  + C++, Embedded C, Python, Bash, Java, MATLAB, Lua
* Platforms:
  + Unix (Ubuntu, Gobo), Windows (Kernel), Embedded systems
* Technologies:
  + Robotic Operating System, Gazebo & V-REP robotics simulators, CUDA/openACC
* Languages:
  + Russian fluency, Spanish proficiency (University of Minnesota Certification)