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Dennis Melamed

EDUCATION

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)