Daniel F. McGann

github.com/DanMcGann | linkedin.com/in/danielfmcgann

EDUCATION

CARNEGIE MELLON UNIVERSITY | PITTSBURGH PA   2020 - PRESENT
    Doctor of Philosophy in Robotics
    Advised by Professor Michael Kaess in the Robot Perception Lab

NORTHEASTERN UNIVERSITY | BOSTON MA   2016 - 2020
    Bachelor of Science in Computer Science with Minor in Computer Engineering - GPA: 4.0/4.0

WORK EXPERIENCE

NASA JET PROPULSION LABORATORY | PASADENA CA   JUNE - AUG 2020
Software Engineering Intern, Robot Interfaces and Visualization
- Developed software for Surface Simulation (Ssim) a simulator used by rover planners to validate command sequences that define daily operations for Martian rovers
- Expanded Ssim capabilities and features for novel aspects of the Mars 2020 Mission's Perseverance rover
- Enabled state recording for the Adaptive Caching Assembly and improved force modeling of the rover's arm
- Assisted in the development of tools that utilize Ssim to automate validation of Perseverance's autonomous navigation over partially unknown terrain

SQUARE ROBOT | BOSTON MA   JAN 2019 - JUNE 2020
Robotics Software Engineering Co-op
- Developed software features and components ranging the entire software stack for a ROS based harsh environment autonomous submersible vehicle
- Designed new vehicle specific techniques for environment exploration with sparse sensor data, and implemented techniques for use with the vehicle's navigation software
- Tested new and existing software features using both unit (gtest) and simulation tests (gazebo/rostest)
- Operated vehicle for field testing of new hardware and software components
- Praised by supervisor as a "problem solver, able to overcome challenges through hard work and level-headedness"

NORTHEASTERN UNIVERSITY | BOSTON MA   SEPT 2017 - DEC 2018
Tutor for the Khoury College of Computer Science
- Assisted with the teaching of labs, held office hours, and graded student assignments for Northeastern's Fundamentals of Computer Science course

MIT LINCOLN LABORATORY | LEXINGTON MA   JAN - JUNE 2018
Software Engineering Co-op
- Designed a software framework using NASA's Core Flight System to enable autonomous operation of constellations of cube satellites
- Planned and organized project sub-goals and time line from research to code release
- Implemented and tested the framework in C for use on desktop satellite simulators

SKILLS

PROGRAMMING LANGUAGES   **SYSTEMS/FRAMEWORKS**
C/C++ • Java • Python • Racket • LaTeX   ROS • Gazebo • Git • Linux/MacOS

RESEARCH

NU ROBOTICS AND INTELLIGENT VEHICLES RESEARCH LAB | BOSTON MA   SEPT 2017 - JUNE 2019
NASA RASC-AL's Mars Ice Challenge
- Led interdisciplinary team of six students who designed, constructed, and tested a remotely controlled robotic system capable of collecting water from ice deposits located under simulated Martian regolith
- Awarded first place overall out of 50 initial teams, collecting 3 times as much water as the runner up (2018) and awarded Best Technical Paper (2019)
- E. Danthinne et al., "Design and Experimental Validation of a Martian Water Extraction System," 2019 IEEE Aerospace Conference, Big Sky, MT, USA, 2019, pp. 1-10. doi: 10.1109/AERO.2019.8741579

LEADERSHIP EXPERIENCE

NORTHEASTERN UNIVERSITY SEDS CHAPTER | BOSTON MA   JULY 2018 - MAY 2020
- Founded Northeastern University's chapter of the Students for the Exploration and Development of Space
- Organized and advised over 200 students participating in on average 5 yearly research and design projects