# Jonathan A Diller

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## Interests and Goals

My research interests are in autonomy and planning in multi-robot systems with a focus in path planning for UAV swarms. I also have a general interest in Artificial Intelligence and Math Programming. My career goal is to continue conducting research in the field of robotics and automation.

## Education

**Colorado School of Mines** **Golden, CO**
*Doctor of Philosophy in Robotics (In Progress)* *Expected Graduation*: **2025**

**Colorado School of Mines** **Golden, CO**
*Master of Science in Computer Science* **May 2022**
- GPA: *4.0/4.0*

**Pennsylvania State University, Harrisburg** **Middletown, PA**
*Bachelor of Science in Computer Science* **May 2020**
- Minor in Mechatronics Technology
- Minor in Mathematics
- Graduated summa cum laude
- GPA: *3.99/4.0*

## Research Experience

**Research Assistant** *(Under Dr. Qi Han)* **July 2020 - Present**
*Pervasive Computing Systems Group, Colorado School of Mines* *Golden, CO*
- Studying and implementing multi-drone projects with focus on communication constraints.

**Research Scholar** *(Mentor: Dr. Peter Idowu)* **June 2019 - July 2019**
*Penn State Drawdown REU Program* *Middletown, PA*
- Designed and evaluated algorithms for controlling microgrids with PLCs.

**Research Assistant** *(Under Dr. Javad Khazaei)* **March 2019 - June 2019**
*Pennsylvania State University* *Middletown, PA*
- Researched and developed microcontroller applications for use in renewable energy projects.

## Teaching Experience

**Teaching Assistant** **August 2020 – Present**
*Colorado School of Mines* *Golden, CO*
- CSCI 406: Algorithms (Spr 2021)
- CSCI 261: Programming Concepts (Fall 2020)

**Peer Tutor** **August 2017 – May 2020**

*Pennsylvania State University* *Middletown, PA*

- Tutor students in Computer Science, Mathematics, Physics and Engineering classes.
- Earned CRLA Certified Tutor, Level I Certification.

## Publications

**2022** **J. Diller**, P. Hall, C. Schanker, K. Ung, P. Belous, P. Russell, Q. Han, "*ICCSwarm*: A Framework for Integrated Communication and Control in UAV Swarms," **Submitted to** *Eighth ACM Workshop on Micro Aerial Vehicle Networks, Systems, and Applications (DroNet 2022),* 2022

**2022** **J. Diller**, Q. Han, "Mission Time Minimization for UAV & Moving Base Station Through Adaptive Speed," **Submitted to** *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems*, 2022

**2020** **J. Diller**, P. Idowu, J. Khazaei, "Load-Leveling Trainer for Demand Side Management on a 45kW Cyber-Physical Microgrid," *Texas Power and Energy Conference 2020 (TPEC)*, College Station, Texas, Feb. 2020.

**2020** **J. Diller**, B. Trussell, J. Khazaei, P. Idowu, "Hardware Development of a Three-Phase 3.5 kW SiC Converter with Sinusoidal PWM," *Texas Power and Energy Conference 2020 (TPEC)*, College Station, Texas, Feb. 2020.

## Work Experience

**Robert Bosch GmbH** **May 2018 – July 2020**

*Embedded Software Developer & Test Intern* *Lancaster, PA*

- Develop firmware for embedded real-time environments.
- New product prototyping.
- Design and implement automated tests for moving cameras.
- Write documentation for internal procedures.

**United States Marine Corps** **November 2010 - November 2015**

*KC-130J Crewmaster, Plane Captain* *San Diego, CA & Okinawa, Japan*

- Last held rank/pay grade: Sergeant/E-5
- Supervised small teams in pre and post flight inspections on C-130J aircraft.
- Completed Aircraft Plane Captain training through personal initiative.

## Technical Skills

- Programming Languages: C/C++, Python, Java, Matlab, Scheme
- Real-Time and Embedded Software Development
- Software Development in Windows and Linux Environments

## Awards

- Graduation Student Marshal for School of Science, Engineering and Technology **May, 2020**
- Computer Science Outstanding Student, *Pennsylvania State University* **April, 2020**
- Evan Pugh Scholar Award - Senior, *Pennsylvania State University* **April, 2019**
- Evan Pugh Scholar Award - Junior, *Pennsylvania State University* **April, 2018**
- President's Freshman Award, *Pennsylvania State University* **April, 2017**
- Dean's List, *Pennsylvania State University* **Spring 2016 - Spring 2020**