Zachary D. Mizrachi

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EDUCATION

University of Illinois Urbana-Champaign **May 2024**
Bachelor of Science in Computer Engineering *GPA:3.37/4.00*

PROFESSIONAL EXPERIENCE

Easy Aerial ***06/2022- 8/2022***
Software Engineering Intern
- Implemented and compared three odometry, localization, and mapping algorithms using LiDAR and stereo vision towards a Foreign Object Detection quadcopter application
- Optimized in-flight image capture system with bash to enable CPU thread control based on flight status
- Adapted and ported navigation algorithms to real-time embedded platforms such as ModalAI VOXL
- Manufactured custom lithium ion battery packs using spot welding techniques

The Investors Exchange (IEX) ***06/2021 - 08/2021***
Technology Development Intern
- Revamped the internal IEX Dashboard using KX Dashboards to significantly improve real-time performance/server usage, streamlining future dashboard development
- Presented prototype dashboard to CTO and data engineering team, directly deciding software purchase
- Navigated IEX's live data pipeline using KDB/Q for backend data querying

RESEARCH

Human-Centered Autonomy Lab ***09/2022 - Present***
Undergraduate Researcher
- Introduced semantic mapping functionality on top of the TurtleBot2 navigation stack towards a way-finding mobile robot that assists the visually impaired

Quadcopter Vision and Mapping ***09/2017 - 06/2020***
Researcher at Cornell University
- Envisioned, prototyped, and optimized a real-time C++ application that implements OpenCV and Simultaneous Localization and Mapping (SLAM) to detect, map, and track a weapon carrier
- Produced a first-authored 20-page research paper under Professor Land at Cornell University
- Presented at Westlake Science Fair and Junior Science and Humanities Symposium, 1st Place for Engineering and 2nd Place in Engineering and Computer Science

LEADERSHIP

iRobotics: Midwestern Robotics Design Competition ***09/2020 - Present***
UIUC Team Co-Captain
- Guided teammates in robotic development while respecting budget and competition constraints
- Facilitated cross-functional collaboration through direct involvement in electrical, mechanical, and programming sub-teams: utilized Arduino/RasPI for electrical prototyping and Fusion 360 for CAD
- Doubled membership from freshman year to over 25 active members, with over 40 total members

FIRST Robotics ***09/2018 - 5/2020***
Team Creator and Co-Captain
- Mentored twenty teammates in control systems and mechanical assembly via guided learning experiences
- Established internal leadership infrastructure to ensure longevity and consistent team growth
- Collaborated with Irvington Education Foundation to dedicate $2000 annual team funding and received $5000 NASA Rookie Team grant

TECHNICAL SKILLS

Programming Languages | C++, Python, Bash, KDB/Q, Git
Applications | ROS, Arduino, Fusion 360, Autodesk Inventor
Technical Coursework | Deep Learning for Computer Vision, Data Structures, Analog Signal Processing