Raymond Muller | Purdue University

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Summary

Graduate Computer Science student with a computer vision, machine learning, and security background. I have interned at several government institutions working on various computer-related applications spanning computer vision, network security, software engineering, and web development. I am currently working on academic research on autonomous systems and perception under Dr. Z. Berkay Celik. I am also skilled in multiple different martial arts, have an open water diving certification, and I am a former Western States Chess Champion.

Experience

Graduate Research Assistant — Purdue University   Aug 2022 — Present
Conducting research as part of the the PurSec Lab under Dr. Berkay Celik.

Computational Engineering Student Intern — Lawrence Livermore Ntnl Labs   Summers 2019 — Prsnt
Over the course of over 4 years I have worked on various aspects of Ground Penetrating Radar Systems, including implementing object detection systems, creating UIs through full stack development, and dockerization of certain applications.

Doctoral Fellow — National Security Innovation Network   June 2023 — Aug 2023
Worked on critical national security project sponsored by the Department of Defense.

Graduate Teaching Assistant — Purdue University   Aug 2020 — August 2022
Working with instructors and teams of 3-4 Teaching Assistants to lead instructional labs.

Coach — Apex Movement Norcal   Aug 2018 — Aug 2020
Main responsibilities included teaching parkour to lower level youth and adult classes, monitoring open gym, and providing assistance to the front desk.

Student Intern — CCC Department of Information Technology   Oct 2018 — May 2019
Worked on web and software development for Contra Costa County Tax Collector's Office.

Teaching Assistant — California State University East Bay   Jun 2018 – Aug 2018
NSF-Technology Pathways TA under Dr. Jiaofei Zhong for Summer Quarter 2018. Work involved creating homework, slides, presentation materials, and assignments for students in the CS200 course using Python, with a Health-Sciences theme.

Education

Purdue University — PhD, Computer Science   2020 − 2024
Working in computer vision and security research under Dr. Berkay Celik.

California State University - East Bay — MS, Computer Science   2019 - 2020
Graduated with Master's of Science in Computer Science with a 3.97 GPA.

California State University - East Bay — BS, Computer Science   2017 - 2018
Graduated Summa Cum Laude in December 2018.

Publications

- DRIVETRUTH: Automated Autonomous Driving Dataset Generation for Security Applications (Workshop on Automotive and Autonomous Vehicle Security, co-located at NDSS 2022)
- Physical Hijacking Attacks against Object Trackers (ACM Conference on Computer and Communications Security 2022)
- That Person Moves Like A Car: Misclassification Attack Detection for Autonomous Systems Using Spatiotemporal Consistency (USENIX Security 2023)
- Evaluating perception attacks on prediction and planning of autonomous vehicles (USENIX Security 2022)
- Demo: Physically Hijacking Object Trackers (ISOC Symposium on Vehicle Security and Privacy, co-located at NDSS 2023)

Talks / Lectures

- Guest Lecturer at Purdue, CS 592 IoT/CPS, "Machine Learning for Perception and Decision Making (April 4th 2022)
- Lightning Talk at Future Automotive Research Datasets: Challenges and Opportunities, invited by David Balenson at USC, "Automated Autonomous Driving Dataset Generation for Security Applications" (November 18th 2022)

Certifications

- Certificate of Robotics Engineering and Programming with Vex (Villanova University)
- First Degree Black Belt in Tae Kwon Do (World Taekwondo Federation)
- Open Water Diving Certification (SDI)

Skills

Computer Vision • Python • Computer Javascript • Robotics • Penetration Testing • Leadership • Web Development • Machine Learning • Research • C++

Honors and Awards

- National Security Innovation Network X-Force Fellowship (June 5th, 2023)
- Purdue University Graduate Teaching Award (April 15th, 2023)
- ISOC Symposium on Vehicle Security and Privacy Best Demo Award Runner Up (February 27, 2023)
- ISOC Symposium on Vehicle Security and Privacy Travel Grant Awardee (2023)
- General Motors Security AutoDriving Security Award (April 24, 2022)
- Western States Chess Champion.
- Junior Olympic Swimmer