CESAR ARGUELLO

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EDUCATION

Ph.D. in Computer Science — September 2022 - Present
Dartmouth College — *Hanover, NH, USA*
Advisor: Dr. David Kotz
Research Area: Security and Privacy in the Lifecycle of IoT for Consumer Environments

B.S. in Physics & Computer Science — August 2018 - May 2022
University of Florida — *Gainesville, FL, USA*

International Baccalaureate Diploma Programme (IB) — August 2016 - May 2018
UWC Red Cross Nordic — *Flekke, Norway*

INSUSTRY EXPERIENCE

Product Development Engineer Intern — January 2022 - May 2022
Intel Corporation — *Santa Clara, CA, USA*

- Designed, developed, and debugged sort test programs for server products.
- Tested, validated, modified, and redesigned circuits to guarantee component margin to specification.
- Analyzed and evaluated component specification versus performance to ensure optimal match of component requirements with production equipment capability.

RESEARCH EXPERIENCE

Gradute Research Assistant — January 2023 - Present
Dartmouth College — *Hanover, NH, USA*
Department of Computer Science
Advisor: Dr. David Kotz and Dr. Timothy Pierson

- Maintain a C, C++, and Python codebase for a harmonic radar controller, ensuring optimal performance and reliability for various research applications.
- Design and implement experiments and circuit prototypes for novel applications of harmonic radars in IoT security, focusing on advancing research and practical use cases.
- Develop comprehensive research plans targeting conference and journal publications while actively reviewing and discussing relevant literature on IoT security.

Research Assistant — June 2021 - May 2022
Univeristy of Florida — *Gainesville, FL, USA*
Florida Institute of Cybersecurity
Advisor: Dr. Sara Rampazzi and Dr. Kevin Butler

- Designed and developed experiments to test theoretical frameworks on EM side channel disassembly.
- Collected, processed, and analyzed EM traces using statistical and machine learning models.
- Developed research plans leading to the successful completion of project deliverables (publications, presentations, etc.).

Research Assistant — May 2021 - May 2022
Univeristy of Florida — *Gainesville, FL, USA*
Department of Physics, SuperCDMS HVeV-DMC Data Analysis and Simulations Team
Advisor: Dr. Tarek Saab

- Designed and developed Ionization Measurement with Phonons At Cryogenic Temperatures (IMPACT) simulation files for the Geant4 simulator.
- Analyzed Geant4 simulation results with Python.
- Lead discussions about Geant4 simulation results.

Research Assistant August 2020 - February 2021
Univeristy of Florida *Gainesville, FL, USA*
Department of Mechanical and Aerospace Engineering, ADAMUS Lab
Advisor: Dr. Riccardo Bevilacqua

- Designed, developed, and deployed C++ libraries for control of a CubeSat's magnetometers, EPS, and battery, utilizing I2C protocol communication and integrating with Beagle Bone Black microcontroller.
- Tested and debugged flight component prototypes.
- Authored weekly project reports highlighting software development achievements, challenges faced, and innovative solutions implemented during the development of flight software.

TEACHING EXPERIENCE

Gradute Teaching Assitant September 2022 - January 2023
Dartmouth College *Hanover, NH, USA*
CS50: Software Design and Implementation

- Developed and maintained automated grading scripts using Bash and Python to evaluate student assignments.
- Conducted in-depth code reviews for programming projects, providing constructive feedback to enhance code quality, efficiency, and adherence to best practices.
- Held office hours to provide one-on-one mentorship to students on course material and programming projects.

Undergraduate Teaching Assistant January 2021 - May 2021
Univeristy of Florida *Gainesville, FL, USA*
CDA3101: Introduction to Computer Organization

- Assisted student achieved proposed academic goals by leading discussions on lecture material.
- Supported instructors by managing the evaluation of course assignments and providing detailed feedback to students.
- Held office hours to review course material, answer general questions, and provide some assistance on assignments.

PUBLICATIONS

Conference Papers

CP1 Ravindra Mangar, **Cesar Arguello**, David Inyangson, Tina Pavlovich, Karen Gareis, and Tushar Jois. *Proceedings of the 56th ACM Technical Symposium on Computer Science Education V. 1 (SIGCSE TS)*, 2025. Acceptance rate 33%.

CP2 **Cesar Arguello**, Beatrice Perez, Timothy J. Pierson, and David Kotz. Detecting Battery Cells with Harmonic Radar. *Proceedings of the ACM Conference on Security and Privacy in Wireless and Mobile Networks (WiSec)*, 2024. Acceptance rate 21%.

CP3 Beatrice Perez, **Cesar Arguello**, Timothy J. Pierson, Gregory Mazzaro, and David Kotz. *Proceedings of the IEEE Military Communications Conference (MILCOM)*, 2023. Acceptance rate 40%.

Journal Articles

JA1 Timothy J. Pierson, **Cesar Arguello**, Beatrice Perez, Wondimu Zegeye, Kevin Kornegay, Carl Gunter, and David Kotz. We need a "building inspector for IoT" when smart homes are sold. *IEEE Security & Privacy*, 2024.

Posters

P1 **Cesar Arguello**, Hunter Searle, Sara Rampazzi, Kevin Butler. [Poster]: A practical methodology for ML-Based EM Side Channel Disassemblers. *Proceedings of the 2022 Poster Session of the 7th IEEE European Symposium on Security and Privacy*, 2022.

PROJECTS

SDR FM Radio Demodulator August 2024

Real Time FM radio demodulator for HackRF and RTL SDR written in Python. Future Work: Support other SDRs and improve audio streaming. [GitHub Repository]

Bi-detectional Intercom Novermber 2021

Bi-directional intercom based on operational amplifiers, BJT transistors, and diodes. [LTSPice Sim]

Shell for UNIX-Based Systems January 2021

A shell for Unix-based system with basic capabilities, such as I/O redirection, piping, wildcarding, tilde-expansion, and background processing. [GitHub Repository]

OTHER ACADEMIC ACTIVITIES

Student Participant, CyberTruck Challenge *June 2024*

OTHER EXPERIENCE

Audio Visual Specialist May 2019 - March 2022
J. Wayne Reitz Union *Gainesville, FL, USA*

- Managed and installed audio-visual equipment for shows, meeting, and events held at the J. Wayne Reitz Union.
- Aided costumers with audio-visual technical difficulties.

TECHNICAL SKILLS

Languages	English, Spanish
Programming Languages	Python, MATLAB, C++, C, LaTex, x86
Frameworks	Pytorch
Software	Microsoft Suite, Git, GDB, Wireshark
Web skills	HTML5, CSS

AWARDS

Latin Honors, Cum Laude B.S. *May 2022*
Honor Society, Phi Betta Kappa *May 2022*
Academic Scholarship, Davis UWC Scholar *August 2018*