HARRISON FERNANDEZ

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EDUCATION

MICHIGAN STATE UNIVERSITY, East Lansing, MI   **Expected May 2024**
Doctor of Philosophy, Computer Science
- Michigan State University Enrichment Fellowship (UEF) Recipient 2019 - Present.
- Researcher in the Deep Technology Lab led by Dr. Joshua Siegel.

JOHN JAY COLLEGE (CUNY), New York, NY
Bachelor of Science, Computer Science and Information Security   **Conferred June 2019**
- GPA 3.8, Dean's List 2015 - 2019.
- National Science Foundation STEM Scholarship Recipient 2018 - 2019.
- Honors Program – Participated in leadership development program and academic advising.
- PRISM Program – Participated in research development program and one-to-one faculty mentoring.

SKILLS

Languages: English and Spanish. **OS:** Windows, Mac, Debian and RedHat based Linux distros - Kali, CentOS, etc.
Programming Languages: Object-Oriented C++, Python, HTML, CSS, and Javascript.
Familiar with: Steganography, reverse engineering tools, password cracking, binary analysis, cryptanalysis, intrusion detection systems (Snort, Bro, OSSEC), Wireshark, and Nmap.

RESEARCH EXPERIENCE

CAPSTONE EXPERIENCE IN HONORS PROGRAM (HON 401), New York, NY   **Spring 2019**
Student Researcher, John Jay College (CUNY), Faculty Mentor: Dr. Sven Dietrich.
Project Title: A Combined Approach to Vulnerable Code Clone Discovery.
- Developed a new method of vulnerability discovery utilizing both source and binary code.
- Performed a survey of existing state-of-the-art source code clone discovery techniques.
- Evaluated source code clones across four open source projects and large database of firmware images.
- Presented research at campus-wide symposium (May 2019).

PROGRAM FOR RESEARCH INITIATIVES (PRISM), New York, NY   **Summer 2018 - Spring 2019**
Student Researcher, John Jay College (CUNY), Faculty Mentor: Dr. Sven Dietrich.
Project Title: Towards Vulnerable Binary Code Clone Detection through Firmware Lineage.
- Developed an advanced method of vulnerability discovery in binary code.
- Evaluated firmware images across multiple architectures and compilers.
- Experimented with several binary disassemblers.
- Presented research at campus-wide symposium (May 2019).

CAPSTONE EXPERIENCE IN CYBERSECURITY (CSCI 400), New York, NY   **Fall 2018**
Student Researcher, John Jay College (CUNY), Faculty Advisor: Dr. Sven Dietrich.
Project Title: An Empirical Study of the Robustness of Google Play Store Applications Through Fuzzing Techniques.
- Performed an empirical study of robustness in top 100 Google Play Store applications.
- Studied various fuzz testing applications and relevant mobile fuzz techniques.
- Evaluated fuzz testing results and software bugs on multiple emulators and physical devices.
- Coordinated a team of four students to meet deadlines and pursue goals of the study.

SUMMER RESEARCH OPPORTUNITIES PROGRAM (SROP), East Lansing, MI   **Summer 2018**
Summer Research Intern, Michigan State University, Faculty Mentor: Dr. Guan-Hua Tu.
Project Title: The Design and Implementation of a Low-Cost Bitcoin Vending Machine.
- Engaged in 10 week residential program for students interested in graduate study.
- Developed a proof-of-concept, low-cost vending machine and server to carry out fast Bitcoin transactions.
- Utilized microcontroller within vending machine to communicate with server and verify transactions.
- Presented research at campus-wide symposium (July 2018).
- Awarded SROP 2018 Most Interesting Research Project.

TEACHING EXPERIENCE

BRIDGE TO ENTER ADVANCED MATHEMATICS (BEAM), New York, NY   **Summer 2019**
Counselor and Teaching Assistant.
- Reinforced learning concepts as teaching assistant for Programming in Python class.
- Introduced groups of marginalized sixth grade students to mathematics above middle school requirements.
- Supervised students in the classroom and outside during social and educational activities.
- Led circuit board and video game programming activities for groups of eight to twelve students.

CYBERSECURITY WORKFORCE ALLIANCE, New York, NY   **Spring 2018**
Teaching Assistant, John Jay College (CUNY).
- Worked with students on individual and small group basis to reinforce cybersecurity concepts.
- Motivated students to achieve personal and professional goals, complete assignments and improve performance.
- Facilitated discussion and addressed student grievances.

CODE ADVANTAGE, New York, NY   **Fall 2017 - Spring 2018**
Lead Instructor.
- Educated children ages six to eleven through computer science and robotics classes.
- Taught curriculum at four NYC public schools in six classes.
- Engaged a class of fifteen to twenty students with weekly projects.

LEADERSHIP AND WORK EXPERIENCE

COMPUTER SCIENCE SOCIETY, New York, NY   **Spring 2018 - Spring 2019**
President (Fa '18 - Spr '19, Vice President (Fa '17 - Spr '18), Member (Fa '15 - Spr '19), John Jay College (CUNY).
- Led student organization in professional, academic, and skill development events.
- Engaged with students of various backgrounds, and internal and external organizations on event planning.
- Motivated club officers and members to stay on track and go beyond their roles.
- Created and facilitated monthly agenda of events, meetings, student-led workshops, competitions, conference attendance, and technology-focused office tours.
- Awarded 'Student President of the Year' for Fall 2018/Spring 2019 term.

JOHN JAY COLLEGE HONORS PROGRAM, New York, NY   **Fall 2017 - Spring 2018**
Peer Mentor.
- Guided ten incoming honors students in experiencing a successful and fruitful first year of college.
- Led the ten students in year-long community service project related to human trafficking.
- Served as a professional, personal, and academic role model.

CYBERSECURITY WORKFORCE ALLIANCE (CWA)   **Spring 2017**
Cyber Threat Analyst Intern, John Jay College (CUNY).
- Selected for a team mentored by key professionals to develop an insider threat program for the financial sector.
- Led the 6-student team to meet deadlines and exceed expectations for projects every week.
- Designed and communicated policies complying with regulatory cybersecurity requirements leveraging NIST CSF.
- Co-presented cybersecurity strategies about cybersecurity at the Federal Reserve Bank of New York.

EXTRACURRICULAR ACTIVITY

Participant at Kaspersky Industrial CTF Competition   **Fall 2018**
Led team of four from John Jay College to complete challenges related to computer and network security.

Participant at PicoCTF Competition   **Fall 2018**
Led team from John Jay College to gain computer & network security skills from this high school competition.

Participant at CSAW Capture The Flag Competition   **Fall 2018**

Led team of four students from John Jay College to rank 130 out of 350 undergraduate teams at qualifying round.

Member of John Jay Women in Technology at John Jay College   **Fall 2017 - Spring 2019**
Attended club meetings, events, and workshops, providing input on possible improvements to club experience.

Junior Representative at John Jay Honors Student Council   **Fall 2017**
Created community building events for the John Jay Honors Program.

Major League Hacking's Local Hack Day at John Jay College   **Fall 2017**
Hosted virtual hackathon for four teams of four participants from multiple CUNY colleges.

Fundraiser for RestoreNYC Campaign   **Spring 2017**
Raised more than $2,500 for mothers of sex trafficking through social media, email outreach, and bake sales.

CUNY SmartPitch Competition at CUNY Startups   **Spring 2017**
Won third place out of 16 teams, developing a smartphone app to recommend restaurants based on specific menu items.

DuckDuckGo NYC Hackathon   **Summer 2016**
Collaborated with three developers to identify search engine improvements to DuckDuckGo's API.