

# HARRISON FERNANDEZ

Queens, NY | 929-471-2159 | harrison-fernandez.github.io | harrison.fernandez@jjay.cuny.edu

## EDUCATION

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### **MICHIGAN STATE UNIVERSITY, East Lansing, MI**

**Expected May 2023**

Doctor of Philosophy, Computer Science

- Michigan State University Enrichment Fellowship (UEF) Recipient 2019 - Present.

### **JOHN JAY COLLEGE (CUNY), New York, NY**

Bachelor of Science, Computer Science and Information Security

**Expected May 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

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**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

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### **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

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### **BRIDGE TO ENTER ADVANCED MATHEMATICS (BEAM), New York, NY**

**Summer 2019**

*Counselor and Teaching Assistant.*

- Introduces groups of marginalized six and seventh grade students to mathematics above middle school requirements.
- Supervises students in the classroom and outside during social and educational activities.
- Works one-to-one and as a teaching assistant with students to introduce and improve their math skills.

### **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

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### **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

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### **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.

<b>Member of John Jay Women in Technology at John Jay College</b>	<b>Fall 2017 - Spring 2019</b>
Attended club meetings, events, and workshops, providing input on possible improvements to club experience.	
<b>Junior Representative at John Jay Honors Student Council</b>	<b>Fall 2017</b>
Created community building events for the John Jay Honors Program.	
<b>Major League Hacking's Local Hack Day at John Jay College</b>	<b>Fall 2017</b>
Hosted virtual hackathon for four teams of four participants from multiple CUNY colleges.	
<b>Fundraiser for RestoreNYC Campaign</b>	<b>Spring 2017</b>
Raised more than \$2,500 for mothers of sex trafficking through social media, email outreach, and bake sales.	
<b>CUNY SmartPitch Competition at CUNY Startups</b>	<b>Spring 2017</b>
Won third place out of 16 teams, developing a smartphone app to recommend restaurants based on specific menu items.	
<b>DuckDuckGo NYC Hackathon</b>	<b>Summer 2016</b>
Collaborated with three developers to identify search engine improvements to DuckDuckGo's API.	