ALEXANDRA BELLON

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EDUCATION

University of Texas at Austin, Spring 2021 BS in Computer Science and Mathematics, 3.68 GPA

Selected Coursework: Cryptography, Network Security & Privacy, Quantum Information Science, Computer Architecture, Operating Systems, Computer Graphics, Matrices, Abstract Algebra, Number Theory, Topology

EXPERIENCE

Security Engineering Intern | Mozilla **Summer 2020**

- Researched security in language based package managers like Cargo, NPM and PyPI
- Calculated attack possibilities for package maintainer account takeover, package code compromise, and vulnerability exploitation
- **Used research I conducted to fix security scoring algorithm** on Mozilla's Dependency Observatory project, used to estimate how secure NPM packages are

Security Analyst Intern | Electronic Arts **Summer 2019**

- Used **Python** to automate checking for open ports and other attack vectors on EA's cloud instances. Scanned **800+ instances**, found **1400+ security incidents**
- Automated sending summary of vulnerabilities to affected parties, with descriptions of the vulnerabilities and instructions to resolve them

Teaching Assistant for CS361: Intro to Security | UT Austin **Jan - Dec 2019**

- Created and graded security-focused assignments for **80+ students**
- Lectured on various topics in security like **cryptography** and **forensics**
- Created and ran a CTF competition for the students' final exam

ATTENDED EVENTS/ CONFERENCES

DEFCON 2019 (Women in Security & Privacy Scholarship)
BlackHat 2019 (Student Scholarship)
Grace Hopper Conference 2019 (UTCS Scholarship)
USENIX Security 2020 (Diversity Grant)
Tapia Conference 2020 (UTCS Scholarship)

SELECTED PROJECTS

(more on GitHub/website)

Anshel-Anshel-Goldfeld key exchange with Rubik's Cube Group

- Implementation of a key exchange protocol that uses non-commutative cryptography with the Rubik's Cube Group written in **Python**
- Project link: github.com/alex-bellon/anshel-anshel-goldfeld-rubiks-cube

Goldreich–Goldwasser–Halevi encryption scheme

- Implementation of a lattice-based cryptosystem written in **Python**

Mozilla Dependency Observatory

- Contributed to Mozilla's Dependency Observatory project, which scores NPM packages based on how likely they are to be secure to use
- Tweaked the scoring algorithm to more accurately predict whether or not a package would have a vulnerability, added graphs to represent distribution of scores, and fixed other bugs
- Worked with **Python, k8s, Docker, Flask, GraphQL**
- Research link: github.com/mozilla-services/dependency-observatory-research
- Project link: github.com/mozilla-services/dependency-observatory

Scrambled: Rubik's Cube based steganography

- Implemented steganographic algorithm to encode text in Rubik's Cube move notation, based on whitepaper
- **Wrote paper for "PagedOut" security zine about project** (pagedout.institute)
- Project link: github.com/alex-bellon/rubikstega

Drunken Bishop

- Program written in **Python** that uses the Drunken Bishop algorithm to output the ASCII art representation of an OpenSSH public key fingerprints

- Project link: github.com/alex-bellon/drunken-bishop

Is The Lab Full?

- Program written in **Python** that uses the Drunken Bishop algorithm to output the ASCII art representation of an OpenSSH public key fingerprints
- Project link: github.com/alex-bellon/is-the-lab-full

LEADERSHIP

President (former Eng. Officer) | UT Information & Systems Security Society **2018 – present**

- Write security challenges for Capture the Flag (CTF) competitions with **50+ participants,** as well as a yearly **international CTF with 1200+ teams**
- Give talks about security-related topics such as cryptography, forensics, privacy, etc.
- Lead a team of **15 officers** and serve an organization with **100+ members**

Captain | UT CCDC & CPTC Team **2019 – present**

- Lead a team of 8 in red team and blue team security competitions
- Placed 2nd in 2019, 3rd in 2020 at Southwest Regionals (CCDC), 2nd in 2019 at New England Regionals '19 (CPTC)

Web/Tech Senior Officer | Association for Computing Machinery **2018 – 2020**

- Implemented new features and fixed bugs on UT's ACM chapter website
- Wrote curriculum for and hosted 'CS101', a series of **8-10 introductory workshops** for freshmen with topics like Linux basics, Git/VCS, debugging, etc
- CS101 link: github.com/UTACM/CS101

AWARDS & HONORS

Louis E. Rosier Memorial Undergraduate Scholarship (2020/2021)
Jack S. Blanton Family Millennium Celebration Endowed Scholarship (2017/2018)
Capture the Flag (Jeopardy): 1st at SunshineCTF (2019), 1st at AtlassianCTF (2020), 3rd at Angstrom CTF (2019), 3rd at AtlassianCTF (2018, 2019), 10th at SwampCTF (2019)
Capture the Flag (Attack/Defense): 1st at Texas Network Massacre (2019)
Hackathons : 1st at TAMUhack (2019), 3rd at Hacklahoma (2019), top 10 at Hacklahoma (2018), competed in 15+ hackathons total

OTHER ACTIVITIES

Q++ Member LGBTQ+ computer science club **2019 - present**
Hispanic Association of Computer Scientists Member **2017 - present**
Hook 'Em Arts Member Performing Arts appreciation club **2017 - present**
Austin Quidditch Chaser/Seeker Club sports team **2017 - 2019**

TECHNICAL SKILLS

Most comfortable in Python, Java and C, familiar with C++, HTML, CSS, MySQL and Haskell.

Comfortable with Linux and UNIX, Shell (bash/zsh), Git, Vim, and command line tools. Familiar with k8s and Docker.