



ALEX BELLON

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EDUCATION

- University of California San Diego** PhD in Computer Science **2021 - Current**
- University of Texas at Austin** BS Computer Science, BS Mathematics, 3.69 GPA **2017 - 2021**
- **Selected Coursework:** Cryptography, Network Security & Privacy, Quantum Information Science, Computer Architecture, Operating Systems, Computer Graphics, Matrices, Abstract Algebra I & II, Number Theory, Topology

EXPERIENCE

- Teaching Assistant for CS349: Contemporary Issues in Comp. Sci.** | UT Austin **Spring 2021**
- Graded assignments and held office hours for a class of **40+ students**
 - Shared resources and information regarding ethical and social issues in computer science
- 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

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

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)

- o Project link: github.com/alex-bellon/rubikstega

Drunken Bishop

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

Is The Lab Full?

- o Twitter bot that uses the Building Wide Intelligence (BWI) robots to count how many people are using the computer lab using the YOLOv3 object detection algorithm
- o Worked with **Python (tweepy)**, **C++ (Robot Operating System)**, **Bash**
- o Project link: github.com/alex-bellon/is-the-lab-full

LEADERSHIP

President, Engineering Officer | UT Information & Systems Security Society 2018 – 2021

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

Captain | UT CCDC & CPTC Team

2019 – 2021

- o Lead a team of 8 in red team and blue team security competitions
- o Placed 1st in 2021, 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

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

AWARDS & HONORS

San Diego Fellowship (2021)

Cactus Standout Award (2021)

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 - 2021

Hispanic Association of Computer Scientists Member

2017 - 2021

Hook 'Em Arts Member Performing Arts appreciation club

2017 - 2021

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.