

# Seif Ibrahim

FRESHMAN COMPUTING STUDENT · UNIVERSITY OF SANTA BARBARA · CA

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*"A motivated computer scientist and ViM nerd with 5+ years of experience who is obsessed with high performance code/algorithms and enjoys building personal projects and hacks in C/C++."*

## Education and Training

### University of Santa Barbara California

*Santa Barbara, California*

COMPUTER SCIENCE B.S.

2018-2022

- **Relevant Coursework:** Algorithms and Data Structures in C++, Unix Operating Systems Lab, Mathematics of Computer Science (Discrete Math & Probability), Linear Algebra, Calculus III Multivariable Calculus.
- 1 of 6 freshmen chosen to pursue research and an accelerated Computer Science courseload in College of Creative Studies.

### Albany High School

*Albany, California*

HIGH SCHOOL DIPLOMA

2014 - 2018

- **4.44 (Weighted, top decile, SAT: 1530/1600, SAT Math II: 800/800)**
- **AP Tests:** AP Computer Science A : 5, AP CSP: 5, AP AB/BC Calculus: 5, AP Biology: 5, AP Physics Mech: 4, AP Chem: 4, AP French: 5

### Python Boot Camp at UC Berkeley

*Berkeley, California*

PYTHON DATA SCIENCE AND WEB DEVELOPMENT CERTIFICATE

2016

- Python Boot Camp: A rigorous course in the Python Scripting Language covering website backends(Django), data processing libraries (NumPy, pandas, SciPy, etc.), and Git version control.

### PROMYS Research Scholarship (Program in Mathematics for Young Scientists)

*Boston University*

CERTIFICATE OF COMPLETION

2017

- One of 80 students, national and international selected in 2017 to do research in number theory at Boston University (six-week summer program) under the mentorship of professors and graduate students from universities such as MIT, Harvard, Princeton.

## Projects

#### Linux Fake Webcam

Wrote a multi-thousand line program in C to which allows the user to pretend they are someone else on any webcam chat. The program does this by inputting a video of someone performing a set of actions and as well as a JSON file with timestamps to the actions and transition between them. It provides the user with an interface they can use to smoothly and convincingly control the actions that appear on their webcam. It does this by using linux video libraries and a kernel module to allow piping video into the webcam device.

#### Masterlock Combo Solver

Built a robot which is able to unlock any master combination lock and output its combination by designing a custom breadboard circuit, 3D printing a frame, and assembling the motors with the circuitboard and frame.

#### Neural Network Game Bot

Wrote an AI player in Javascript using neural networks and evolutionary learning algorithms. The bot learns by itself how to complete any level of a platformer game (similar to mario) given only the game controls and end destination.

#### Django Database & Website

Wrote a large database web application in Django used by Albany High School to organize anual freshmen debates.

#### LISP interpreter in SNAP

Wrote an program and environment in SNAP (visual programming language created by UC Berkeley) in a clever attempt to loophole having to use SNAP for in-class project, and instead using a written language.

## Honors & Awards

2016-18 **USA Computing Olympiad (USACO)**, Platinum Division (top 5% Nationally)

*California, US*

2017-18 **PIe Robotics Competition at UC Berkeley**, 1st place Award and Software/Sensors Award out of over 30 competing schools

*California, US*

2017-18 **Moody Mega Math Challenge**, Top 8% paper award and \$1000 Scholarship (two-time winner nationally)

*California, US*

2016-17 **Bay Area Mathletes**, Undeclared Math Team in competition with all Bay Area high schools

*California, US*

2016-17 **The National French Contest (Le Grand Concours)**, Gold Medal (top 5% Nationally)

*California, US*

## Skills

### Programming Languages

C/C++, JAVA, Python, HTML/CSS, Javascript, LaTeX

### Software

Solved hundreds of algorithm and security problems on PicoCTF, Project Euler, USACO, Codeforces, Google Foobar, etc.

Git, ViM, Linux, Eclipse, Matlab