

POL GÓMEZ RIQUELME

+1 (773) 690-7360 ◊ gomezp@uchicago.edu ◊ polgomez.com

EDUCATION

The University of Chicago

B.S. in Computer Science and Mathematics

Chicago, IL

Expected June 2020

- **GPA** 3.68 **Awards & Scholarships** Dean's List 2016-2019, Odyssey Scholar
- **Relevant Coursework** *Current* — Cryptography, Operating Systems *Previous* — Algorithms, Deep Learning, Computer Systems, Multivariate Statistics, Numerical Analysis, Linear and Abstract Algebra, Analysis in \mathbb{R}^n

EXPERIENCE

SAND Lab at The University of Chicago

Researcher

Chicago, IL

May 2019 – Present

- Designed and trained a deep learning model to reverse-propagate WiFi signal maps in PyTorch
- Developed proof-of-concept adversarial attacks on an LSTM network used for anomaly detection

Mathematics REU at The University of Chicago

Researcher

Chicago, IL

June 2018 – August 2018

- Wrote a 30-page graduate-level introduction to algebraic number theory
- Provided periodic progress reports and summarized project results for a non-mathematical audience

Autonomous University of Barcelona (UAB)

Researcher

Bellaterra, Spain

June 2017 – September 2017

- Compiled novel results on the mathematical theory of polynomial functors
- Wrote a technical survey on the fundamental concepts of category theory and its applications

Institute of Photonic Sciences (ICFO)

Research student

Castelldefels, Spain

July 2016

- Implemented the Fast Fourier Transform image compression algorithm in C++ and MATLAB
- Created a set of C++ image processing tools allowing adjustments to brightness, contrast, color palette and sharpening

Research Science Institute (RSI) at MIT

Research student

Boston, MA

July 2015 – August 2015

- Proposed a mathematical conjecture on combinatorics and tested it with Python code (SageMath)
- Wrote technical paper on research results and presented it to an audience of 30+

Catalunya-La Pedrera foundation (“Joves i Ciència” program)

Project collaborator

Remote

August 2014 – January 2015

- Automated near-Earth object detection on a collection of ~500 telescope images with Python
- Used astronomical imaging software MaximDL to compute accurate differential photometric figures

PROJECTS

CHIP-8 System Emulator — github.com/aszkid/chip8

January 2018

- Wrote a fully-featured CHIP-8 emulator in Rust capable of running game ROMs
- Programmed a CPU emulator with configurable clock speed and graphics system through the SFML library

C++ Rendering Engine — github.com/aszkid/milsim

November 2017 – January 2018

- Designed an OpenGL rendering pipeline configurable through JSON files
- Implemented a double-frame game loop to allow lock-less synchronization between graphics and game logic threads

Machine Learning Research Project — github.com/aszkid/fsia

December 2013 – June 2014

- Received *National Youth Research Prize* (Generalitat de Catalunya)
- Programmed virtual self-driving car through Q -learning
- Implemented hand-written digit recognition through C++ FANN library neural networks

CLUBS AND EXTRACURRICULARS

UChicago Applied Math Club (UCAMC)

Vice President, ucamc.github.io

Chicago, IL

August 2018 – Present

- Co-organized weekly lectures on applied math given by professors at UChicago, regularly attended by ~30 students
- Designed and maintained club's website

SKILLS

Programming Languages

C, C++, Python, Rust, Javascript, SQL, R, MATLAB, \LaTeX

Software & Tools

PyTorch and Tensorflow, GNU/Linux (`bash`, `gdb`), Visual Studio, `git`

Languages

Fluent English, Native Spanish and Catalan, Basic French and Russian