POL GÓMEZ RIQUELME

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EDUCATION

The University of Chicago — **Chicago, IL**
B.S. in Computer Science and Mathematics — *June 2020*

- **GPA**: 3.63 — Dean's List 2016-17 & 2017-18, Odyssey Scholar
- **Courses**: Introduction to Computer Systems, Honors Discrete Mathematics, Abstract Linear Algebra, Group Theory, Advanced Analysis in R^n (I-II-III)

EXPERIENCE

Mathematics REU at The University of Chicago — **Chicago, IL**
Researcher — *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) — **Bellaterra, Spain**
Researcher — *June 2017 – September 2017*

- Compiled novel results on polynomial functors under the guidance of Prof. Joachim Kock
- Wrote a technical survey on the fundamental concepts of category theory and its applications

Institute of Photonic Sciences (ICFO) — **Castelldefels, Spain**
Research student — *July 2016*

- Implemented industry standard fast Fourier transform JPEG compression algorithm in MATLAB and C++ achieving image space savings of up to 90%
- Created a set of image processing tools in MATLAB allowing adjustments to brightness, contrast, color palette and sharpening

Research Science Institute (RSI) — **Boston, MA**
Research student — *July 2015 – August 2015*

- Proposed mathematical conjecture on combinatorics and tested its validity with Python (SageMath)
- Wrote technical paper on research results at MIT Mathematics Department
- Presented research to audience of 30+ at final conference

Catalunya-La Pedrera foundation — **Remote**
Project collaborator — *August 2014 – January 2015*

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

PROJECTS

CHIP-8 System Emulator *on GitHub* — **January 2018**

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

C++ Rendering Engine *on GitHub* — **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 *on GitHub* — **December 2013 – June 2014**

- Received *National Youth Research Prize* (Catalan Government)
- Programmed virtual self-driving car through Q-learning
- Implemented hand-written digit recognition through FANN library neural networks

CLUBS AND EXTRACURRICULARS

UChicago Applied Math Club (UCAMC) — **Chicago, IL**
Vice President, official website — *August 2018 – Present*

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

SKILLS

Programming Languages	C, C++, Python, Rust, Javascript (Angular and Node), SQL, LaTeX
Software & Tools	GNU/Linux (bash, gdb), Visual Studio, `git` and `svn` workflows
Languages	Fluent English, Native Spanish and Catalan, Basic French and Russian