

Jan-Paul V. Ramos

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EDUCATION

Cornell University

(Bachelor of Arts in Mathematics and Computer Science)

CS 2110 (OO Design and Data Structures)

CS 2800 (Discrete Structures)

MATH 2230 (Theoretical Linear Alg & Calc)

Ithaca, NY

(Expected Graduation: 2025)

CS 4999 (Independent Reading & Research)

[Graduate Course] CS 6110 (Advanced Programming Languages)

[Graduate Seminar] CS 7190 (Programming Languages and Compilers)

PUBLICATIONS / RESEARCH

- **Undergraduate Researcher @ Cornell CAPRA** (November 2021 - Present)
 - Develop operational semantics for a language of continuous guarded assignments and develop a type system for the Calyx language.
 - Tools: Calyx, Rust, Fud, Verilog, Operational Semantics
- **Domain Specific Language for differential equations with Scott-Starchey semantics** (Oct 2020 - March 2021)
 - Created a domain specific programming language for solving differential equations, and developed the denotational semantics of the language.
 - Awards: Most Outstanding Exhibit in Science, Technology, Engineering, and Mathematics from Yale University | Mu Alpha Theta Award | Regeneron International Science and Engineering Fair 2021 Finalist
 - Tools: TypeScript, PEGjs, JavaScript, Haskell, HTML/CSS
- **Calc 2: A Concatenative Oriented Programming Language** (June 2020 - July 2020)
 - Created a stack based language with pattern matching.
 - Tools: Raku
- **Pythagorean Triples in Pascal's Triangle: A computational and algebraic approach** (Sept 2019 - February 2020)
 - Developed an algorithm for expressing Pythagorean Triples in terms of Pascal's Triangle, and created a C++ command line tool for showing the algorithm explicitly.
 - Awards: The Office Naval Research Science Award | Mu Alpha Theta Award | Regeneron International Science and Engineering Fair 2020 Finalist
 - Tools: C++, Coq

EXPERIENCE

- **Research Experiences for Undergraduates in Software Engineering | Researcher | Carnegie Mellon University** (May 2022 - August 2022)
 - Working with mentors Jonathan Aldrich and Joshua Sunshine for a cost benefit analysis of Gradual Verification.
- **Google Computer Science Summer Institute | Scholar | Remote** (June 2021 - August 2021)
 - Participated in a 4-week intensive computer science summer program for high-achieving students, went through curriculum taught by Google engineers, and delivered a final project presentation to Google employees.
 - Tools: JavaScript, p5.js, node.js, socket.io
- **Engineering Apprenticeship Program | Apprentice | University of Puerto Rico, Río Piedras** (June 2020 - July 2020)
 - Learned about the applications of physics in electronics with doctoral physics students at the University of Puerto Rico and developed several Arduino projects.
 - Tools: C++, Arduino

TECHNICAL SKILLS

- **Programming Languages:** Python, C++, Java, Ruby, Crystal, OCaml, Nim, Rust, Raku, Haskell, Scala, Elixir, Coq, HTML/CSS/JS, TypeScript, Verilog, Prolog, Mathematica, MATLAB, LaTeX
- **Tools:** Git, Unix, VSCode, IntelliJ IDEA, Docker, Jekyll, Tmux, PEGjs