Jan-Paul V. Ramos

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EDUCATION

Cornell University **Ithaca, NY**
(Bachelor of Arts in Mathematics and Computer Science) *(Expected Graduation: 2025)*

Undergraduate-level Courses:
CS 2110 (OO Design and Data Structures)
CS 2800 (Discrete Structures)
MATH 2230 (Theoretical Linear Alg & Calc)

Graduate-level Courses:
CS 4999 (Independent Reading & Research)
CS 6110 (Advanced Programming Languages)
CS 7190 (Sem in Programming Languages and Compilers)

PUBLICATIONS / RESEARCH

- **Undergraduate Researcher @ Cornell CAPRA** *(November 2021 - Present)*
  - Develop operational semantics for a language of conitnuous 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