

Jan-Paul Vincent Ramos-Dávila

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Education

Cornell University

2021 - 2025

B.A. in Computer Science, B.A. in Philosophy

Experience

Carnegie Mellon University, Software and Societal Systems

06/2022 - Present

Research Intern, advised by Dr. Jonathan Aldrich & Dr. Joshua Sunshine

Pittsburgh, PA

Summer '23 Exploring the application of gradual verification techniques to smart contracts on the *Algorand* platform.

Spring '23 Developed formal proofs for establishing semantic correspondence to ensure soundness between the static and dynamic verifiers.

Summer/Fall '22 Fixed optimization bugs and implemented a Property Based Testing tool for evaluating the soundness of Gradual C_0 .

Cornell University, Computer Architecture & Programming Abstractions

10/2021 - 12/2022

Undergraduate Research Assistant, advised by Dr. Adrian Sampson

Ithaca, NY

Fall '22 Worked on a symbolic execution tool for verifying parallelism in Calyx.

Winter '21/Spring '22 Fixed compiler front-end bugs and implemented *Graphicionado* *Graph Analytics* algorithm in Calyx.

Publications

POPL 2023

Evaluating Soundness of a Gradual Verifier with Property Based Testing Jan-Paul Ramos-Dávila

(Video 📺) (Poster 📄)

In *Principles of Programming Languages Student Research Competition* 🏆 **Third Place Winner**

In *Cornell Undergraduate Research Journal Vol. 2 No. 1* 📄

Notable Projects

Co-Evolution of Code and Mined Specifications *Cornell CS 6156 Runtime Verification* 📄

Empirical study on temporal behaviors of specifications for code verification in open-source codebases.

RNAfoldml *Cornell CS 3110 Functional Programming* 📄

OCaml package that enables users to input both RNA sequences in FASTA format and a set of constraints to predict RNA secondary structure.

Diffeq-lang *Senior High School Project* 📄

Domain Specific Language for solving differential equations.

Honors

Winner, Third Place, ACM SIGPLAN Symposium POPL SRC

2023

Travel Scholarship, ACM SIGPLAN Conference PLDI

2022

Finalist, Mathematics, Regeneron International Science and Engineering Fair

2020 & 2021

Technical Skills

Languages: OCaml, Python, Scala, Rust, Racket, Java, JavaScript, C, English, Español, Italiano

Tools: Unix, Git, VSCode, IntelliJ IDEA, Neovim, Docker, Heroku, L^AT_EX