

Jan-Paul Vincent Ramos-Dávila

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Education

Cornell University

2021 - 2025

Bachelor of Arts in Computer Science & Philosophy

Experience

Carnegie Mellon University, Software and Societal Systems

06/2022 - Present

REU Research Intern

Pittsburgh, PA

Advised by Dr. Jonathan Aldrich & Dr. Joshua Sunshine on Gradual Verification: a state of the art verification technique that leverages partial specifications for scalability.

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

Ithaca, NY

Advised by Dr. Adrian Sampson on the developing the Calyx Compiler Infrastructure for Accelerator Generators. Calyx's control language simplifies encoding of high-level semantics.

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

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

Presentations

POPL 2023

Evaluating Soundness of a Gradual Verifier with Property Based Testing

(Video [↗](#)) (Poster [↗](#))

In *Principles of Programming Languages Student Research Competition* [↗](#)

Publications

CURJ 2023

Evaluating Soundness of a Gradual Verifier with Property Based Testing

Jan-Paul Ramos-Dávila

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, \LaTeX