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
REUSE 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.
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.

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

Academic Service

Student Volunteer, ACM SIGSOFT ISSTA/ECOOP 2023 Seattle, WA
Student Volunteer, ACM SIGPLAN ICFP 2023 Seattle, WA

Technical Skills

Languages: OCaml, Python, Scala, Rust, Racket, Java, JavaScript, C, English, Español, Italiano
Tools: Unix, Git, VSCode, IntelliJ IDEA, Neovim, Docker, Heroku, LaTeX