Jan-Paul Vincent Ramos-Dávila

Ø jpramos.me | ☑ jvr34@cornell.edu | ♀ github/jpvinnie | in linkedin/jpv-ramos

Education

Cornell University

2021 - 2025

Bachelor of Arts in Computer Science & Philosophy

Experience

Carnegie Mellon University, Software and Societal Systems

06/2022 - Present Pittsburgh, PA

REU Research Intern

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

<u>Summer '23</u> 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 Ithaca, NY

Undergraduate Research Assistant

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.

 $\overline{\text{Winter '21/Fall '22}}$ Fixed compiler front-end bugs and implemented $Graphicionado\ Graph$ $\overline{Analytics}$ 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 더

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