

# Jan-Paul Vincent Ramos-Dávila

 [jpramos.me](https://github.com/jpvinnie) |  [jvr34@cornell.edu](mailto:jvr34@cornell.edu) |  [github/jpvinnie](https://github.com/jpvinnie) |  [linkedin/jpv-ramos](https://www.linkedin.com/in/jpv-ramos)

## Education

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### Cornell University

2021 - 2025

Bachelor of Arts in Computer Science & Philosophy

## Experience

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### 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.

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

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POPL 2023

### Evaluating Soundness of a Gradual Verifier with Property Based Testing

(Video ) (Poster )

In *Principles of Programming Languages Student Research Competition* 

## Publications

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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

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### 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

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<b>Winner, Third Place</b> , ACM SIGPLAN Symposium POPL SRC	2023
<b>Travel Scholarship</b> , ACM SIGPLAN Conference PLDI	2022
<b>Finalist, Mathematics</b> , Regeneron International Science and Engineering Fair	2020 & 2021

## Academic Service

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

## Technical Skills

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