

Jan-Paul Vincent Ramos-Dávila

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Education

Cornell University

Bachelor of Arts in Computer Science & Bachelor of Arts in Philosophy

08/2021 - 05/2025

Ithaca, NY

Experience

Utrecht University, Advanced Functional Programming Summer School [↗](#)

07/2023

Lectured by Dr. Wouter Swierstra and Dr. Gabriele Keller

Utrecht, Netherlands

Participated in a mix of lectures, labs and a busy social program, discussing advanced topics regarding the **theory and practice of Haskell programming**.

Amazon, Summer Undergraduate Research Experience [↗](#)

06/2023 - 08/2023

Industry experience workshop led by Amazonians Myles Shiroma & Korin Torrence Johnson
Selected for Amazon's summer research program at Carnegie Mellon University from a pool of **~1,900 applicants**. Continued work on Gradual Verification and developed **significant optimizations** for asserting runtime checks in Gradual C_0 .

Pittsburgh, PA

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* blockchain platform in developing *Gradually Verified Teal* [↗](#).

Spring '23 Worked on **formal proofs** for establishing semantic correspondence to ensure soundness between the static and dynamic verifier.

Summer/Fall '22 Fixed optimization bugs and implemented a **Property Based Testing** tool for evaluating the soundness of *Gradual C_0* [↗](#) source code.

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.

Fall '21/Spring '22 Fixed compiler front-end bugs and implemented *Graphicionado Graph Analytics* algorithm in Calyx [↗](#).

Publications

Evaluating Soundness of a Gradual Verifier with Property Based Testing Jan-Paul Ramos-Dávila In Principles of Programming Languages Student Research Competition (POPL 2023 [↗](#)) & In Cornell Undergraduate Research Journal (CURJ Vol. 2 No. 1 [↗](#)). (POPL Video [↗](#)) (POPL Poster [↗](#))

Notable Projects

Incremental Specification Mining (Cornell CS 6156 Runtime Verification [↗](#)) Instrumentation for Maven-based projects that *incrementally* mines specifications for runtime verification. Significantly decreases overhead for evolutionary-aware specification mining.

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 SIGPLAN ICFP 2023

Seattle, WA

Technical Skills

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

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