# Jan-Paul Vincent Ramos-Dávila

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## Education

**Cornell University** 2021 - 2025
B.A. in Computer Science, B.A. in Philosophy

**Utrecht University, Advanced Functional Programming Summer School** 07/20203
Lectured by Dr. Wouter Swierstra and Dr. Gabriele Keller in a mix of lectures, labs and a busy social program, discussing advanced topics regarding the theory and practice of Haskell programming.

## Experience

**Amazon, Summer Undergraduate Research Experience** 06/2023 - 08/2023
Research Intern, advised by Dr. Jonathan Aldrich Pittsburgh, PA
Developed optimizations for asserting runtime checks in Gradual $C_0$.

**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 *Gradual Teal*.
Spring '23 Worked on 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, advised by Dr. Adrian Sampson Ithaca, NY
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.

## Publications

POPL 2023 **Evaluating Soundness of a Gradual Verifier with Property Based Testing**
**Jan-Paul Ramos-Dávila**
(Video) (Poster)
In *Principles of Programming Languages Student Research Competition* **Third Place Winner**
In *Cornell Undergraduate Research Journal Vol. 2 No. 1*

## Notable Projects

**Incremental Specification Mining** *Cornell CS 6156 Runtime Verification*
Instrumentation for Maven-based projects that *incrementally* mines specifications for runtime verification.

**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