Jan-Paul Vincent Ramos Dávila

Personal Data

Email: mail@janpaul.pl , jvr34@cornell.edu
Homepage: janpaul.pl
Researchr: conf.researchr.org/profile/janpaulramosdavila
ACM DL: dl.acm.org/profile/99661434450

Education

2021 - 2025 | **Cornell University**
Bachelor's of Arts in Philosophy, Concentration in Mathematical Logic

Experiences

06/2024 | **Research Assistant, NASA Langley Formal Methods**
Mechanized proofs that model correct behaviors of a Software Defined Delay-Tolerant Network's Match-Action pipeline for NASA's Interplanetary Overlay Network framework.
Developed a formally verified Network Calculus IR in Rocq. Wrote an interpreter for a subset of P4 to target the IR.

05/22 - 05/24 | **Research Assistant, Carnegie Mellon University S3D**
Core contributor on the early development of the Gradual Verification framework. Empirically evaluated the soundness of Gradual C_0, and provided formal proofs of completeness between the dynamic and static verifiers.
Explored the application of Gradual Verification to smart contracts on the Algorand and Ethereum blockchain platforms and developed a prototype for Gradually Verified Teal.
Advisor: Dr. Jonathan Aldrich

10/21 - 05/25 | **Research Assistant, Cornell University, Calyx**
Implemented Graphicionado Graph Analytics algorithm in Calyx as a case study of the language. Found/solved soundness bugs in the front-end in the Computer Architecture & Programming Abstractions group.
Worked on a symbolic execution tool for verifying parallelism in Calyx.
Advisor: Dr. Adrian Sampson

Publications

2025 | Jenna DiVincenzo, Ian McCormack, Hemant Gouni, Jacob Gorenburg, **Jan-Paul Ramos-Dávila**, Mona Zhang, Joshua Sunshine, Éric Tanter, Jonathan Aldrich.
"Gradual C0: Symbolic Execution for Gradual Verification", In **TOPLAS, 46(4), Article No.: 14 P.1-57** and **POPL 2025**

2023 | **Jan-Paul Ramos-Dávila**.
"Evaluation Soundness of a Gradual Verifier with Property Based Testing", In **Cornell Undergaduate Research Journal, 2(1), P.17-27** and **POPL 2023 Student Research Competition**.

Presentations

2025 | *"Formal Verification of a Software Defined Delay-Tolerant Network"*, In **IEEE Workshop on Optimizing Interplanetary Communication Through Network Autonomy** and **CoqPL 2025**.

2024 | *"Gradual Verification of Smart Contracts"*, In **PriSC 2024** and **POPL 2024 Student Research Competition**.

2023 | *"Optimization of a Gradual Verifier: Lazy evaluation of Iso-recursive PRedicates as Equi-recursive at Runtime"*, In **MWPLS 2023** and **POPL 2023 Student Research Competition**.

Teaching

Teaching Assistant

1/2025 - 5/2025 | CS 4/5111 Practicum in Operating Systems
Cornell University

8/2024 - 12/2024 | CS 4114 Systems Programming
Cornell University

1/2024 - 5/2024 | CS 4/5110 Programming Languages and Logics
Cornell University

Achievements

2024 **Travel Scholarship**, Verification Mentoring Workshop at CAV
2023 **Fellow**, Amazon Summer Undergraduate Research Experience at CMU
2023 **Third Place Winner**, ACM SIGPLAN POPL SRC
2022 **Travel Scholarship**, PLMW at ACM SIGPLAN PLDI
2020/21 **Finalist in Mathematics**, Regeneron International Science and Engineering Fair

Academic Service

5/2025 **Video Co-Chair**, ACM SIGPLAN PLDI'25
1/2025 **Video Co-Chair**, ACM SIGPLAN POPL'25
9/2024 **Virtualization Chair**, ACM SIGPLAN ICFP'24
6/2024 **Virtualization Chair**, ACM SIGPLAN PLDI'24
1/2024 **AV Committee**, ACM SIGPLAN POPL'24
9/2023 **Student Volunteer**, ACM SIGPLAN ICFP'23

Skills

English	Native
Spanish	Native
Tools	Unix, Git, Bash, Neovim, Docker, Heroku, HTML/CSS
Programming Languages	LaTeX, Coq, OCaml, Scala, Python, Haskell, JS/TS, Java, C/C++, Rust
Programming Language Schools	OPLSS'24, AFP Summer School'23