Jan-Paul Vincent Ramos-Dávila

Personal Data

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Education

2025 -	**Boston University** Doctor of Philosophy in Computer Science *Interests*: Programming Languages, Automated Reasoning, Formal Verification *Advisors*: Dr. Ankush Das, Dr. Marco Gaboardi
2021 - 2025	**Cornell University** Bachelor's of Arts in Philosophy *Interests*: Foundations of Mathematics and Logics, Epistemology, Analytics
Summers	UC/EasyUC'25, SPLV'25, OPLSS'24, AFP'23

Experiences

2024 - 2025	**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. › *Advisor:* Dr. Alwyn Goodloe
2022 - 2024	**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
2022 - 2023	**Research Assistant, Cornell University, CAPRA Group** › Implemented Graphicionado Graph Analytics algorithm in Calyx as a case study of the language. As a result, found/solved soundness bugs in the toolchain's front-end. › Worked on a symbolic execution tool for verifying parallelism in Calyx. › *Advisor:* Dr. Adrian Sampson

Publications

2025 | Jenna DiVincenzo, Ian McCormack, Conrad Zimmerman, 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 Undergraduate Research Journal, 2(1), P.17-27** and **POPL 2023 Student Research Competition**.

Presentations

2025 | *"Sound Default-Typed Scheme"*, In **Scheme and Functional Programming Workshop**.

"Formal Verification of a Software Defined Delay-Tolerant Network", In **IEEE Workshop on Optimizing Interplanetary Communication Through Network Autonomy** and **The Eleventh International Workshop on Coq for Programming Languages**.

2024 | *"Gradual Verification of Smart Contracts"*, In **Workshop on Principles of Secure Compilation** and **POPL 2024 Student Research Competition**.

2023 | *"Optimization of a Gradual Verifier: Lazy evaluation of Iso-recursive Predicates as Equi-recursive at Runtime"*, In **The Midwest PL Summit 2023** and **POPL 2023 Student Research Competition**.

Teaching

Teaching Assistant

2025 | **CS 4/5111 Practicum in Operating Systems**
Ran coding workshops with hands-on demos building and debugging C applications while teaching the EGOS operating system.
Cornell University

2024 | **CS 4114 Systems Programming**
Graded assignments and ran coding workshops with hands-on demos building and debugging C++/Linux applications.
Cornell University

CS 4/5110 Programming Languages and Logics
Examination czar in charge of the infrastructure of midterms, graded students' assignments, and held weekly office hours.
Cornell University

Awards

2025	**PhD Fellowship**, Boston University
2025	**Scholarship**, SPLV Summer School at The University of Edinburgh
2024	**Scholarship**, Verification Mentoring Workshop at CAV
2023	**Intern Fellowship**, Amazon Summer Undergrad Research Experience at CMU REUSE
2023	**Third Place Winner**, Student Research Competition at ACM SIGPLAN POPL
2022	**Scholarship**, PLMW at ACM SIGPLAN PLDI
2020&21	**Finalist**, Mathematics at Regeneron International Science and Engineering Fair

Academic Service

2026	**AV Committee**, ACM SIGPLAN PLDI, Boulder CO
2026	**AV Committee**, ACM SIGPLAN POPL, Rennes FR
2025	**AV Committee**, ACM SIGPLAN ICFP/SPLASH, Singapore
2025	**Video Co-Chair**, ACM SIGPLAN PLDI, Seoul KR
2025	**Video Co-Chair**, ACM SIGPLAN POPL, Denver CO
2024	**Virtualization Chair**, ACM SIGPLAN ICFP, Milan IT
2024	**Virtualization Chair**, ACM SIGPLAN PLDI, Copenhagen DK
2024	**AV Committee**, ACM SIGPLAN POPL, London UK
2023	**Video Co-Chair**, ACM SIGPLAN SPLASH, Cascais PT
2023	**Student Volunteer**, ACM SIGPLAN ICFP, Seattle WA

Skills

English	Native
Spanish	Native
Tools	Unix, Git, Bash, Neovim, Docker, HTML/CSS
Plangs	LaTeX, Rocq, OCaml, Scala, Python, Haskell, JS/TS, Java, C/C++, Rust, P4