

# JAN-PAUL VINCENT RAMOS-DÁVILA

## PERSONAL DATA

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## EDUCATION

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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:* Philosophy of Mathematics, Logic, and Type Theory

## EXPERIENCES

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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

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- 2025 | Jenna DiVincenzo, Ian McCormack, Hemant Gouni, Jacob Gorenburg, **Jan-Paul Ramos-Dávila**, Mona Zhang, Joshua Sunshine, Éric Tanter, Jonathan Aldrich. “*Gradual Co: 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

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- 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

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### 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

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- 2024 | **Travel Scholarship**, Verification Mentoring Workshop at CAV
- 2023 | **Fellow**, Amazon Summer Undergraduate Research Experience at CMU REUSE
- 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

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

## SKILLS

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ENGLISH Native  
SPANISH Native  
TOOLS Unix, Git, Bash, Neovim, Docker, Heroku, HTML/CSS  
PLANGS ~~TEX~~TEX, Coq, OCaml, Scala, Python, Haskell, JS/TS, Java, C/C++, Rust  
PL SCHOOLS OPLSS'24, AFP Summer School'23