

# JAN-PAUL VINCENT RAMOS-DÁVILA

## PERSONAL DATA

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EMAIL: [mail@janpaul.pl](mailto:mail@janpaul.pl)  
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RESEARCHR: [conf.researchr.org/profile/janpaulramosdavila](https://conf.researchr.org/profile/janpaulramosdavila)  
ACM DL: [dl.acm.org/profile/99661434450](https://dl.acm.org/profile/99661434450)

## EDUCATION

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2021 - 2025 | **Cornell University**  
BACHELOR'S OF ARTS IN PHILOSOPHY, CONC. PHIL OF MATHEMATICS AND LOGIC

## 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",<br>In <b>IEEE Workshop on Optimizing Interplanetary Communication Through Network Autonomy</b> and <b>CoqPL 2025</b> . |
| 2024 | "Gradual Verification of Smart Contracts", In <b>PriSC 2024</b> and <b>POPL 2024 Student Research Competition</b> .  |
| 2023 | "Optimization of a Gradual Verifier: Lazy evaluation of Iso-recursive Predicates as Equi-recursive at Runtime", In <b>MWPLS 2023</b> and <b>POPL 2023 Student Research Competition</b> .   |

## TEACHING

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### TEACHING ASSISTANT

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| 2025 | <b>CS 4/5111 Practicum in Operating Systems</b><br>Ran coding workshops with hands-on demos building and debugging C applications while teaching the EGOS operating system.<br><i>Cornell University</i>   |
| 2024 | <b>CS 4114 Systems Programming</b><br>Graded assignments and ran coding workshops with hands-on demos building and debugging C++/Linux applications.<br><i>Cornell University</i><br><br><b>CS 4/5110 Programming Languages and Logics</b><br>Examination czar in charge of the infrastructure of midterms, graded students' assignments, and held weekly office hours.<br><i>Cornell University</i> |

## AWARDS

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

## ACADEMIC SERVICE

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| 2025 | <b>Video Co-Chair</b> , ACM SIGPLAN PLDI'25       |
| 2025 | <b>Video Co-Chair</b> , ACM SIGPLAN POPL'25       |
| 2024 | <b>Virtualization Chair</b> , ACM SIGPLAN ICFP'24 |
| 2024 | <b>Virtualization Chair</b> , ACM SIGPLAN PLDI'24 |
| 2024 | <b>AV Committee</b> , ACM SIGPLAN POPL'24         |
| 2023 | <b>Student Volunteer</b> , ACM SIGPLAN ICFP'23    |

## SKILLS

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ENGLISH	Native
SPANISH	Native
TOOLS	Unix, Git, Bash, Neovim, Docker, Heroku, HTML/CSS
PLANGS	<del>TEX</del> $\text{\LaTeX}$ , Coq, OCaml, Scala, Python, Haskell, JS/TS, Java, C/C++, Rust
PL SCHOOLS	OPLSS'24, AFP Summer School'23