

# Emmanuel Suárez Acevedo

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## Research Interests

Programming languages, type systems, proof assistants, functional programming

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## Education

**University of Pennsylvania School of Engineering and Applied Science**

**Philadelphia, PA**

*Candidate for an MSE in Computer and Information Science*

*May 2024*

**University of Pennsylvania School of Engineering and Applied Science**

**Philadelphia, PA**

*BSE with Honors in Computer and Information Science*

*May 2019*

**Courses:** Advanced Topics in Programming Languages, Computer Aided Verification, Compilers and Interpreters, Operating Systems, Computer Graphics, Software Foundations, Analysis of Algorithms, Computer Architecture

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## Experience

**Graduate Researcher**

**Philadelphia, PA**

University of Pennsylvania

*August 2022 – May 2024*

- \* Studied the duality of effects and coeffects in call-by-push-value. Formalized properties of type-and-effect system in Agda. ([arXiv preprint](#), submitted for review to OOPSLA 2024)
- \* Developed a proof by logical relations that can be used for teaching the technique of logical relations with a proof assistant ([arXiv preprint](#))
- \* Wrote an [online tutorial](#) for normalization-by-evaluation (NbE) in literate Agda. Formalized correctness of NbE for the simply-typed lambda calculus.
- \* Formalized a type system and semantics for DeFINE, a programming language for the network data plane

**Senior Software Engineer**

**San Francisco, CA**

Strava

*August 2019 – July 2022*

- \* Led the design and implementation of core system for modeling types of activities
- \* Mentored junior engineers in microservice architecture and Scala programming
- \* Used Apache Spark to build a geospatial data export tool for city planners
- \* Built tools to verify and ensure correctness of internal route data
- \* Developed a Scala microservice to serve all static maps in product

**Undergraduate Researcher**

**Philadelphia, PA**

University of Pennsylvania

*January 2017 – May 2017*

- \* Worked on a [proposal](#) for an extension to the Glasgow Haskell Compiler to allow binding existential type variables to data constructors in patterns
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## Teaching

**Mentor**

**University of Pennsylvania**

CIS 5520: Advanced Programming

*Nov 2023 – Dec 2023*

- \* Advise student groups on a final project of their choosing in Haskell showcasing the material covered over the course of the semester

**Teaching Assistant**

**Heights Philadelphia**

Introduction to Computer Science

*July 2023 – August 2023*

- \* Introduce computer science to middle school students from underrepresented backgrounds in STEM using various in-class exercises

**Teaching Assistant**

CIS 5520: Advanced Programming

- \* Assist with in-class discussion and cooperative exercises centered around functional programming patterns in the Haskell programming language
- \* Advise student groups on a final project of their choosing in Haskell showcasing the material covered over the course of the semester

**University of Pennsylvania***August 2022 – December 2022***Head Teaching Assistant**

CIS 120: Programming Languages &amp; Techniques I

- \* Co-lead and prepare a weekly recitation to review course material on core programming languages and techniques, taught in OCaml and then Java
- \* Hire and train new teaching assistants

**University of Pennsylvania***August 2016 – May 2019*

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**Diversity, Equity, and Inclusion****Anti-racism Lead**

Tech Brand and Diversity Group, Strava

- \* Lead a group in the technology organization focused on initiatives that could be taken to support diversity, equity, and inclusion, and anti-racism

**San Francisco, CA***September 2020 – June 2022***Co-founder and Director of Finance**

The Percentage Project, Inc.

- \* Kickstarted financial and accounting systems for nonprofit organization dedicated to helping every person of every background embrace their diversity and feel a sense of belonging in the field that they pursue

**San Francisco, CA***November 2019 – June 2020***CIS Diversity Summit Organizer**

University of Pennsylvania

- \* Collaborate in organizing a summit bringing together all members of the computer and information science community to determine how to work together to create a more diverse, inclusive, and supportive environment

**Philadelphia, PA***Aug 2018 – May 2019***VP of Finance**

Society of Hispanic Professional Engineers, University of Pennsylvania Chapter

- \* Fundraise and organize bringing student members to the SHPE National Convention

**Philadelphia, PA***May 2016 – May 2019*

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**Skills****Languages:** Agda, Haskell, Scala, OCaml, Java, Coq, Ruby, C/C++, Javascript**General:** Git, L<sup>A</sup>T<sub>E</sub>X, Rails, React, Fluent in Spanish

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**Awards***Outstanding Research Award*, University of Pennsylvania School of Engineering and Applied Sciences (2024)*Graduate Research Fellowship*, National Science Foundation (2024)*Dean's Master's Scholarship*, University of Pennsylvania School of Engineering and Applied Sciences (2022)