

Emmanuel Suárez Acevedo

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Research Interests

Programming languages, type systems, proof assistants, functional programming

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

Experience

Graduate Researcher

Philadelphia, PA

University of Pennsylvania

August 2022 – Present

- * Studied the duality of effects and coeffects in call-by-push-value. Formalized several properties of type-and-effect system in Agda. ([arXiv preprint](#), submitted for review to OOPSLA 2024)
- * Presented a strategy for making logical relations easier to mechanize and its extensibility ([arXiv preprint](#))
- * Developed a [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

- * Designed core system for modeling types of activities, leading implementation
- * 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

Final Project 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 & 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*

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

Tech Brand and Diversity Group, Strava

- * Meet biweekly with a small group in the technology organization to discuss initiatives that could be taken both at large and within the technology organization itself to support diversity, equity, and inclusion, with a focus on anti-racism

San Francisco, CA*September 2020 – June 2022***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***Chapter Founder and Vice President**

Society of Hispanic Professional Engineers Jr., Dorado Academy Chapter

- * Founded and organized a SHPE Jr. chapter promoting Puerto Rican representation and excellence in STEM

Dorado, Puerto Rico*May 2013 – May 2015*

Skills**Languages:** Agda, Haskell, Scala, OCaml, Java, Coq, Ruby, C/C++, Rust, Swift**General:** Git, L^AT_EX, Rails, Apache Spark, Cassandra, MySQL, iOS, React, Fluent in Spanish

Awards*SHPE 2023 National Convention Funding, University of Pennsylvania SHPE Chapter (2023)**PLMW @ ICFP 2023 Funding, ACM SIGPLAN (2023)**Dean's Master's Scholarship, University of Pennsylvania School of Engineering and Applied Sciences (2022)*
