Emmanuel Suárez Acevedo

emmanueljs1@gmail.com • emmanuelsuarez.com
linkedin.com/in/emsuac • github.com/emmanueljs1

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. (paper under review, OOPSLA 2024)
* Presented a strategy for making logical relations easier to mechanize and its extensibility (paper under review, CPP 2024)
* 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

---

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
University of Pennsylvania
August 2022 – December 2022

* 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

Head Teaching Assistant
CIS 120: Programming Languages & Techniques I
University of Pennsylvania
August 2016 – May 2019

* 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

Diversity, Equity, and Inclusion

Anti-racism Lead
Tech Brand and Diversity Group, Strava
San Francisco, CA
September 2020 – June 2022

* 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

Director of Finance
The Percentage Project, Inc.
San Francisco, CA
November 2019 – June 2020

* 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

CIS Diversity Summit Organizer
University of Pennsylvania
Philadelphia, PA
Aug 2018 – May 2019

* 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

VP of Finance
Society of Hispanic Professional Engineers, University of Pennsylvania Chapter
Philadelphia, PA
May 2016 – May 2019

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

Chapter Founder and Vice President
Society of Hispanic Professional Engineers Jr., Dorado Academy Chapter
Dorado, Puerto Rico
May 2013 – May 2015

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

Skills

Languages: Agda, Haskell, Scala, OCaml, Java, Coq, Ruby, C/C++, Rust, Swift
General: Git, LaTeXRails, 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)