Emily Herbert

herbert.emilyanne.jobs@gmail.com • emilyaherbert.com • github.com/emilyaherbert

Education

2021 **MS in Computer Science**, *The University of Massachusetts Amherst*, Amherst, MA.

2018 **BS in Computer Science**, *Trinity University*, San Antonio, TX.

Skills

Languages.
Proficient: Rust, Scala, JavaScript, TypeScript, Python, OCaml, C++
Familiarity: Haskell, Idris, C, C#, R, Java, Greenfoot, ScalaFX, JavaFX

Tools.
Kubernetes, Docker, OpenWhisk, Google Cloud Platform, Unity

Specialties.
Serverless Computing, Cloud Computing, Language Development, Compiler Development, Programming, Software Design, Distributed Computing, Game Development, Object Oriented Programming, Functional Programming, System Design, Algorithms

Work Experience

Aug 2021 - present **Fuel Labs**.
Compiler Engineer - Rust
Designed and implemented a compiler for the Sway smart contract programing language, focusing on friendly interactivity with developers. Built tools to integrate with the Fuel modular execution layer ecosystem for Ethereum.

May 2021 – Aug 2021 **Google**, *Madison, WI.*
Software Engineering Intern
Implemented load balancing in a library meant to interface with the network card and perform RPC-like operations using RMA, achieved by integrating two existing early-development libraries together. Contributed to app design on a Google 2023 project.

June 2017 – Aug 2017 **National Aeronautics and Space Administration (NASA)**, *Langley, VA.*
NASA Internships, Fellowships, and Scholarships (NIFS) Intern
Contributed to the NASA Safeguard autonomous drone geofencing project. Designed and implemented system for on-board flight control of GPS devices. Refactored code from previous NASA flight missions to meet current mission standards.

June 2016 – Aug 2016 **General Electric (GE), Oil & Gas**, *Billerica, MA.*
Information Technology Leadership Program (ITLP) Intern
Created asset tracking system for shop floor using RFID, Bluetooth LE, and Raspberry Pi. Worked with the SAP enterprise resource management software to automate EHSM compliance checks.

Research Experience

Jan 2021 - May 2021 **NeuPRL Lab**, *Northeastern University*.
Northeastern Programming Languages Lab (NeuPRL), advised by Prof. Arjun Guha. Researching programming language and systems tools for serverless computing.
prl.ccs.neu.edu

May 2019 - Jan 2021 **PLASMA Lab**, *University of Massachusetts Amherst*.
Programming Languages and Systems at Massachusetts lab (PLASMA), advised by Prof. Arjun Guha. Researching programming language and systems tools for serverless computing.
plasma-umass.org

June 2018 - May 2019 **DREAM Lab**, *University of Massachusetts Amherst*.
Data systems Research for Exploration, Analytics, and Modeling lab (DREAM), advised by Prof. Peter Haas. Researching deep learning methods for simulation input modeling.
dbgroup.cs.umass.edu

Publications

Wang Cen, Emily A. Herbert, and Peter J. Haas. NIM: Modeling and Generation of Simulation Inputs via Generative Neural Networks. *Winter Simulation Conference*. 2020. [paper]
Best Contributed Theoretical Paper Finalist

Emily A Herbert, Wang Cen, and Peter J Haas. NIM: Generative Neural Networks for Simulation Input Modeling. *Summer Simulation Conference.* 2019. [short paper]

Preprints

Emily Herbert and Arjun Guha. A Language-based Serverless Function Accelerator. 2021. [preprint, repo]

Talks, Panels & Posters

Emily Herbert. Sway: A Rust-based Smart Contract Language. *EthDenver.* 2022. [slides]

The Rollup Developer Experience panel. *EthDenver.* 2022. [recording]

Emily Herbert. A Language-based Serverless Function Accelerator. *Google PhD Intern Research Conference.* 2021.

My Time From Trinity Until Now. *Trinity University.* 2020.

Graduate Student Life. *Trinity University.* 2020.

Emily Herbert. A Language-based Serverless Function Accelerator. *Cornell CAPRA Lab.* 2020. [slides]

Emily A Herbert. NIM: Generative Neural Networks for Simulation Input Modeling. *SCS Summer Simulation Conference.* 2019. [slides]

Teaching Experience

Sep 2018 - May 2019 **University of Massachusetts Amherst**, *Amherst, MA.*
Programming Methodology *Teaching Assistant*, Mathematical Foundation for Informatics *Teaching Assistant*

Aug 2016 - May 2018 **Trinity University**, *San Antonio, TX*.
Principles of Computer Science II *Teaching Assistant*, Introduction to Programming Logic *Teaching Assistant*, Principles of Computer Science II *Teaching Assistant*

Awards & Scholarships

July 2019 **David W. Stemple Scholarship in Computing**, *University of Massachusetts Amherst*.
Provides support to a first-year graduate student in Computer Science pursuing a Ph.D. in Systems research.

May 2019 **UMass CICS Women's Travel Grant**, *University of Massachusetts Amherst*.
Awarded to UMass CICS women to assist with conference travel expenses.

May 2019 **UMass CICS Travel Grant**, *University of Massachusetts Amherst*.
Awarded to UMass CICS students to assist with conference travel expenses.

April 2019 **PLISS Studentship**.
Awarded to new programming languages and systems researchers to attend the 2019 Programming Languages Implementation Summer School (PLISS).

Nov 2018 **PLMW and POPL 2019 Scholarship**, *SIGPLAN*.
Awarded to new programming languages researchers to attend the 2019 Programming Languages Mentoring Workshop (PLMW) and Principles of Programming Languages Conference (POPL).

Mar 2018 **2018 UMass CICS Fellowship**, *University of Massachusetts Amherst*.
Awarded to an outstanding graduate student applicant within the UMass CICS applicant pool.

Relevant Coursework

Completed at Northeastern University.
History of Programming Languages

Completed at University of Massachusetts Amherst.
Programming Languages, Systems, Research Methods, Algorithms, Artificial Intelligence, Game Programming, Networking

Completed at Trinity University.
Programming Languages, Operating Systems, Big Data and Machine Learning, Software Engineering, Principles of Functional Languages, Theoretical Computer Science, Principles of Computer Design, Data Abstraction, Game Theory, Discrete Data Structures

Service

2021 EuroSys 2021 Shadow PC Member

2020 Mentor to 3 first-year UMass CICS PhD students
UMass CICS PhD applicant support program reviewer
Northeastern University PhD applicant support program reviewer
#ShutdownPL @ ICFP volunteer
ShutdownPL volunteer

2019 Mentor to 1 first-year UMass CICS PhD student
Winter Simulation Conference poster session reviewer