Willow Ross Carretero Chavez

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Education

Massachusetts Institute of Technology *Cambridge, MA*
B.Sc. in Biology — GPA: 4.7 *Expected Dec 2024*
- Coursework: Fundamentals of Programming, Math for CS, Organic Chemistry I, Intro to Biological Chemistry, Genetics, Cell Biology, Molecular Basis of Infectious Disease, Molecular Biology, Microbial Physiology

Professional Experience

Google *Seattle, WA*
Software Engineering Intern *Jun 2024 — Aug 2024*
- Implemented horizontal scaling of gRPC/TCP proxy between Kubernetes control plane and cluster networks in collaboration with the Kubernetes Cloud Provider Special Interest Group
- Refreshed the Spanish translation of the open source Comprehensive Rust tutorial

Software Engineering Intern *May 2023 — Aug 2023*
- Designed and implemented extensions to the Kubernetes Addon Manager (KAM) in Golang to accelerate Kubernetes addon development and deployment
- Reduced KAM queries per second by up to 20% across the Google Kubernetes Engine fleet

Massachusetts Institute of Technology *Cambridge, MA*
Undergraduate Researcher @ Jensen Lab *Sep 2022 — Dec 2022*
- Expanded a novel method of chemo-enzymatic retrosynthesis using Python and RDKit
- Presented a poster at the 2022 ML for Pharmaceutical Discovery and Synthesis Consortium

Undergraduate Researcher @ Sinskey Lab *Feb 2021 — May 2021*
- Executed cell nanodrop, ddPCR, qPCR, and ELISA assays for DNA and protein quantification of samples from small-scale bioreactors used for adeno-associated virus production

Wayfair *Boston, MA*
Software Engineering Co-Op *Jan 2022 — Aug 2022*
- Used diverse enterprise software tools (Docker, Kafka, Google BigQuery, Kubernetes, DataDog) as part of a large team of software engineers and data analysts
- Created multiple microservice APIs using Java, Python, FastAPI, and PostgreSQL

D. E. Shaw Research *New York, NY (Remote)*
Early College Intern *May 2021 — Aug 2021*
- Ran free energy perturbation (FEP) molecular dynamics simulations of ligand-receptor systems
- Created novel method of FEP network generation in Python using integer linear programming

Kufareva Lab @ UCSD Skaggs School of Pharmacy *Chula Vista, CA*
Volunteer, Staff Research Associate *Jul 2018 — Aug 2018, Feb 2019 — Dec 2020*
- Wrote toolkit to verify, validate, and visualize Boolean models of cell signaling networks
- Analayzed mass spectrometry phosphoproteomic (TMT-MS^2) data using R
- Implemented new method of protein binding pocket similarity scoring using MolSoft ICMScript

Publications

Carretero Chavez, W., Krantz, M., Klipp, E. et al. *kboolnet*: a toolkit for the verification, validation, and visualization of reaction-contingency (*rxncon*) models. *BMC Bioinformatics* **24**, 246 (2023).

Skills

- Fluent in English & Spanish, can converse in French
- Python, Java, Golang, R, Rust
- Sterile lab technique
- Mammalian cell culture
- Molecular biology lab basics
- Knows when to ask for help
- Driven by results and data
- Fast learner and curious