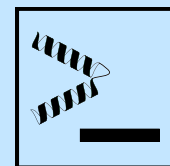# Willow Ross Carretero Chavez

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Education

- **Massachusetts Institute of Technology** — Expected Graduation May 2024 — Cambridge, MA
  - Cumulative GPA — 4.6
  - Candidate for BS in Computer Science and Molecular Biology with Minor in Chemistry
  - Relevant Coursework: Fundamentals of Programming, Organic Chemistry I, Math for Computer Science, Multivariable Calculus, Intro to Biological Chemistry, Genetics
- **Mater Dei Catholic High School** — Graduated: May 2019 — GPA: 4.63 — Chula Vista, CA

Work Experience

- **Wayfair LLC** — Boston, MA

  Software Engineering Co-Op: January 2022 — August 2022
  - Learned diverse enterprise software tools such as Docker, Kafka, Google BigQuery, Kubernetes, SQL, Git, Pytest, Buildkite, DataDog
  - Participated in weekly book clubs, learning functional programming concepts in Haskell as well as a variety of software architectural patterns in Python
  - Created multiple microservice APIs using Python, FastAPI, and PostgreSQL
  - Rapidly delivered results by merging 30 PRs within the first month, and later 14 within a particularly productive week
- **D.E. Shaw Research —** New York, NY

  Early College Intern: May 2021 — September 2021
  - Executed free energy perturbation (FEP) molecular dynamics simulations of ligand-protein complex systems
  - Implemented several methods of charge neutralization for charge-changing FEP simulations
  - Created novel method of FEP network generation using integer linear programming
- **Sinskey Lab @ Massachusetts Institute of Technology** — Cambridge, MA

  UROP Student Intern: February 2021–May 2021
  - Performed cell counts and metabolite analysis of samples from Erbi and miniBio bioreactors
  - Carried out nanodrop, ddPCR, qPCR, BCA, and ELISA assays for nucleic acid and protein quantification
- **Mathnasium of Mission Gorge** — Santee, CA

  Instructor: August 2019–April 2021
  - Taught students (2nd-12th grade) topics ranging from addition to single-variable calculus
  - Effectively leveraged online teaching platforms to perform engaging remote instruction
- **Kufareva Lab @ UCSD Skaggs School of Pharmacy and Pharmaceutical Sciences** — La Jolla, CA

  Staff Research Associate: October 2019–December 2020

  Volunteer: July 2018–August 2018, February 2019–October 2019
  - Analyzed protein structure using the MolSoft ICM protein modeling suite, implementing a new method of protein binding pocket similarity scoring in ICMScript
  - Authored toolkit to validate, process, and visualize Boolean models of cell signaling networks using Python and R; manuscript currently in preparation
  - Performed analysis and visualization of TMT MS^2 phosphoproteomic data using R
  - Executed mammalian tissue culture, PCR, and Gibson cloning protocols

Interests and Skills

- Programming Languages — Python (NumPy), R, ICMScript, Haskell, C
- Familiar with *nix and bash environments (Arch, Ubuntu/Debian)
- Bilingual — Native speaker of English and Spanish, conversational French knowledge
- Hobbies: Hiking, backpacking, biking — whatever gets me out into nature!