

Carlos “Charlie Cruz” Hernandez

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INTRODUCTION

An aspiring Mathematician with real-life Computer Science experience seeking to contribute to various areas of Teaching, Biology, and Linguistics to impact the lives of students and their communities.

EDUCATION

Rice University, 3.57

Houston, TX

Mathematics & Linguistics

August 2021 - May 2025

Relevant Courses: Computational Thinking, Algorithmic Thinking, Principles of Programming Languages, Combinatorics Directed Reading, Honors Multi-Variable Calculus, Honors Linear Algebra, Algorithmic Robotics, Reasoning about Algorithms

- Teaching two sections of [COLL 128: The Art of Lazy Programming](#) in Fall 2022 with 30 students
- President of the Rice Lambda Group, which focuses on advanced Math and CS Theory-centric topics
- Directed a [documentary film](#) about the Covid-19 outbreak in Houston and managed a team of 60 students
- Taught low-income students Python and tips for applying for college through Rice’s RemixCS program
- Member of the Rice Society of Hispanic Professional Engineers chapter

EXPERIENCE

Research Assistant

Houston, Texas

[Ylaboratory Research Group](#)

August 2022 - Present

- Working on optimizing randomized graphs for large biological networks: <https://arxiv.org/pdf/2105.12120.pdf>
- Writing a python package based on NetworkX to generate random graphs more efficiently
- Code reviewing Grad Students’ code for papers and presentations

Research Intern

Houston, Texas

Rice Computer Science Department

May 2022 - August 2022

- Optimized a bioinformatics algorithm to be $42\times$ faster by utilizing Rust, beating a NumPy implementation
- Created a python package to help scientists use the algorithm in their research
- Gave an academic talk to Grad students on “Data Wrangling Big Data in the CLF”

Software Engineering Intern

Australia (Remote)

RightToAsk

Jun 2022 - August 2022

- Worked with a team to encourage engagement in Australian Parliamentary Democracy and voting security
- Tasked to design an algorithm to find related questions based on text similarity (Natural Language Processing)
- Used Cryptography and the Microsoft ElectionGuard library to propose better questions to ask politicians

Production Engineering Fellow

Remote

MLH / Meta

Jun 2022 - August 2022

- Worked with Meta mentors to learn more about Production Engineering and DevOps through various projects
- Won a hackathon that used REST APIs to add interactivity and dynamic content to create a portfolio maker
- Gave an academic talk to 15 people on “What Old Programming Languages Can Teach Us?”
- Used Docker, Continuous Integration, and system monitoring to create a production-ready web app

Contributor

Remote

Open Source

Jan 2019 - Present

- Active Contributor for popular projects like: Arch Linux, Neovim, Rust-Analyzer, and more
- Maintainer of four AUR Packages on Arch Linux
- Contributing to the Linux Community through the Rice Linux Group by fixing real life projects
- Teaching over six hundred thousand viewers, Open-Source Material through the YouTube platform: [SeniorMars](#)

PROJECTS

- [ediSON](#): An editor written in C for JSON files so that users can edit, parse, and serialize JSON files with ease
- [Gesture](#): A model that detects hand gestures in video and translates them to keyboard/mouse inputs
- [Deet](#): A Work-in-progress debugger for C programs written in Rust.
- [Gartus](#): A graphics engine built from scratch in Rust that focuses on linear algebra, code optimization, and parsers
- [RISP](#): A Lisp interpreter written in Rust

SKILLS, ACHIEVEMENTS, AND INTERESTS

- Achievements: Questbridge Match Scholarship, VimConf 2022 Speaker, Hack Rice 11 Challenge Winner
- Research: Google Research Mentorship Program, 3rd Place Winner for the 2019 RCSB PDB Challenge
- Interests: Human Languages, Mathematical Problem-Solving, Compilers, Teaching, Reading
- Languages: Rust, Haskell, Racket, C, Python, Java, Bash, JavaScript (Web Development)
- Technology: Docker, Git, L^AT_EX, MongoDB (Certification), Linux, Raspberry PI, Neovim
- Skills: Spanish, Intermediate German, Intermediate Mandarin, Beginner Korean, Conference Speaking