

# JESUS CARABALLO

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## EDUCATION

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### Massachusetts Institute of Technology

Sep 2024 - May 2028

B.S. in Computer Science and Engineering

*Cambridge, MA*

Coursework: Machine Learning (G), Natural Language Processing (G), Design and Analysis of Algorithms, Probability and Random Variables, and Linear Algebra.

Activities: Intro to Machine Learning TA, Poker Club (3rd at S25 Tournament), Pokerbots, and SHPE.

## EXPERIENCE

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### Founding AI Engineer

May 2025 - Present

ArcellAI

*San Francisco, CA*

- Built backend for bioinformatics AI agent, including LLM inference pipelines, API service layer, and data infra. Achieving **99%** uptime while scaling from 0 to 1000s of users.
- Fine-tuned virtual cell Foundation Model for perturbation response prediction, achieving SOTA predictions for gene expression profiles. Added as tool for agent, which is now used in **30%** of queries fielded.

### AI/ML Software Engineer Intern

May 2025 - Sep 2025

NASA

*Remote*

- Created AstroDASH 2.0, a website and API serving ML models classifying supernovae from spectra. Serves **7,000+** of astronomers with **20ms** end-to-end classifications; crucial for upcoming Rubin Observatory analysis.  
Supports user-uploaded models, optimized batch classification, visualization, and redshift estimation.
- Trained CNNs on supernovae classification and redshift estimation. Used feature engineering, ensembles, K-Fold cross validation, and learning rate scheduling to surpass the original DASH on both tasks.

### Machine Learning Researcher

Dec 2024 - May 2025

Harvard Medical School

*Cambridge, MA*

- Contributed to and maintained PyTDC, a package used by **30k** biocomputational researchers.
- Built infrastructure to benchmark, fine-tune, and run inference on therapeutic AI models like scVI, scGPT, Geneformer, and ESM. Contributed drug sensitivity prediction experiments and molecule generation metrics.
- Used Cython to build an optimized model server and development package for single cell ML models

### Software Engineer Intern

June 2024 - August 2024

Addition Financial Credit Union

*Lake Mary, FL*

- Built a REST API listener for Paylocity's webhooks and managed databases using C# and SQL.  
Collaborated with backend team to automate account handling, reducing IT labor by **200hrs/month**.
- Researched, developed, and presented a demo website using ASP.NET Core to highlight migration benefits.

## PROJECTS

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### MIT Pokerbots

Developed a Deep Q-Network to learn a poker variant, performed feature engineering and hyperparameter finetuning with cross validation, and integrated into MIT's Pokerbots engine to enable autonomous gameplay. Placed **top 10** in final competition.

## SKILLS

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### Languages

Python, C++, C#, TypeScript, JavaScript, and SQL

### Technologies

PyTorch, Numpy, Pandas, FastAPI, Flask, Git, ReactJS, NodeJS, NextJS, and REST