

# Hilal Morrar

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## EDUCATION

### University of Texas at Austin

*Masters of Science, Computer Science*

August 2023 – December 2024

*Austin, Texas*

### University of California, Santa Cruz

*Bachelors of Science, Computer Science*

September 2018 – June 2022

*Santa Cruz, CA*

## EXPERIENCE

### Software Engineer Intern

*Cisco Systems - Duo Security*

May 2024 – August 2024

*San Francisco, CA*

- Engineered a new feature to an internal performance load testing tool using Python, AWS EC2, and MySQL to dynamically create simulated customers and production HTTP requests.
- Created reports for software release tests executed with GitHub CI/CD pipelines to monitor performance metrics for **50,000+ concurrent users** with Datadog, Grafana, and Kibana dashboards.
- Resolved faulty pod monitoring in Kubernetes deployments using Python to eliminate silent job failures or stalled pods and **saved 10% on AWS resources**.

### Software Engineer Intern

*Stealth Startup*

May 2023 – August 2023

*Remote*

- Designed a RESTful API and implemented DELETE request functionality for a distributed, fault tolerant, and consistent key-value store using Go and Docker.
- Developed internal API routes to support dynamic server coordination, data rebalancing, and Bash scripts to automate setup/teardown processes to **improve development efficiency by 30%**.
- Utilized Goroutines for concurrency when handling client and internal HTTP requests for system communication.

### Machine Learning Engineer

*Applied Machine Learning Lab*

September 2020 – August 2021

*Santa Cruz, CA*

- Led the design and training efforts of various CNN model architectures for time-series data with PyTorch.
- Achieved **95% accuracy** by tuning machine learning models with hyperparameter optimization.
- Distributed model training with Pytorch DDP in a Kubernetes GPU cloud for a **50% reduction in training time**.

### Frontend Software Engineer

*Resilient Renewable Efficient Energy Systems*

July 2020 – September 2020

*Santa Cruz, CA*

- Built a registration UI using React, JavaScript, and AWS S3 for an IoT device with hardware and product teams.
- Coordinated end to end integration with backend services on AWS EC2 to ensure smooth device onboarding.
- Optimized data handling and client-side input validation to **raise user experience and accessibility scores by 17%** based on Google Lighthouse audits.

## PROJECTS

### JuiceFS | AWS EC2, AWS S3, GitHub, Go, PostgreSQL, Python

- Extended an open source, distributed file system to support a new object storage API to enhance performance in large-scale distributed environments.
- Implemented a storage interface in Go that resulted in **up to 14% improvement in read/write metrics** for larger files using AWS and PostgreSQL.
- Automated performance tests in Python with a dual benchmarking workflow to collect data and validate the custom storage backend.

### Connect4 Artificial Intelligence Agent | Python

- Developed an AI agent using heuristic evaluation to simulate strategic gameplay for multiple player configurations.
- Programmed game state tracking and board evaluation algorithms to support turn-based decision making.
- Engineered gameplay framework to support modular AI, human, and random players for dynamic matchups.

## TECHNICAL SKILLS

**Languages:** Assembly, C, C++, Go, HTML/CSS, Java, JavaScript, Python

**Frameworks/Libraries:** Agile, Gin, Keras, NumPy, PyTorch, React, TensorFlow, pandas, scikit-learn

**Developer Tools:** Atlassian, Docker, Git, Jira, Kubernetes, Linux/Unix, MySQL, PostgreSQL, Slack, Terraform