

# Charitarth Chugh

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## EDUCATION

**UCONN**  
**M.ENG.**  
**COMPUTER SCIENCE**  
2025-2027

**UCONN**  
**MATHEMATICS-**  
**STATISTICS B.S.**  
Minor: Computer Science  
2021-2025

Relevant Coursework  
Machine Learning • Deep Learning  
Data Science • Data Structures  
& Algorithms • Probability  
Systems Programming •  
Linear Regression •  
Mathematical Statistics

## SKILLS

### PROGRAMMING

Python:  
NumPy • Pandas • Polars • Matplotlib  
FastAPI • SQLAlchemy • Flask  
Frontend:  
Flutter • React

### MACHINE LEARNING

Tools:  
PyTorch • Transformers • scikit-learn  
XGBoost • Albumentations

### DEVELOPMENT

GitHub Actions • Linux • Bash •  
Containers (Docker, Podman)

## ACTIVITIES

### UCONN AI CLUB

**PRESIDENT: 2023-2025**

- The AI Club conducts workshops, showcases, and projects focused on deep learning.
- Coordinated and led weekly meetings with topics such as PyTorch, PEFT, CNNs.

## LINKS

GitHub:// [charitarthchugh](#)  
LinkedIn:// [charitarth](#)  
Twitter:// [@charitarthchugh](#)  
Kaggle:// [charitarth](#)  
Medium:// [@charitarth.chugh](#)

## WORK EXPERIENCE

### PROTECTION SHIELD | MLE, FREELANCE

September 2023 - May 2024

- Collaborated in an team to design and deploy federated learning pipelines for real-time network-attack detection, delivering a 15% reduction in false-positive alerts.

### UCONN RESEARCH ASSISTANT, CTI

July 2023 - December 2023

- Led system bring-up of a model autonomous vehicle platform to support research on road safety and intelligent transportation systems.
- Coordinated cross-functional efforts between the OEM and research stakeholders to ensure smooth integration, testing, and deployment.

## PROJECTS

### ENERGY JUSTICE MAPPING TOOL | DATA SCIENCE

July - August 2024

- As a key member of a multidisciplinary team, contributed to software and methodology development, collaborating closely with stakeholders to identify areas lacking equitable energy infrastructure.
- Secured a \$7,500 grant for our proposal for the Clean Energy & Sustainability Innovation Program 2024, achieving a 10% success rate among applicants.
- Integrated and analyzed geospatial data from 5+ data sources in real-time using GeoPandas.
- Presented findings to White House officials and directors of Eversource Energy at the Clean Energy Summit 2024.

### SPARSEINST | COMPUTER VISION

November 2024 - May 2025

- Replicated the results of Sparse Instance Activation for Real-Time Instance Segmentation by Cheng et al. (2022), published at CVPR 2022.
- Utilized PyTorch Lightning, FiftyOne, and Weights & Biases for model training, testing, and evaluation achieving 45 FPS on a single RTX 5090

### BOOKIE | FULL STACK

May 2022-July 2022

- Designed and implemented a FastAPI backend with SQLite, exposing REST endpoints consumed by a Flutter UI.

## RESEARCH

### RESEARCHER November 2022 - Present

- Collaborating with Dr.Derek Aguiar to integrate large language models and tabular predictors for forecasting motion outcomes in legal cases; accelerated LLM inference by 60% through optimization of speculative decoding, memory usage, and batching strategies.
- Developing parameter-efficient fine-tuning methods to train robust deep learning models with limited resources, improving adaptability and generalization across vision tasks.

## AWARDS

**HACKHARVARD 2023 | EFFICIENCY BOOSTERS PRIZE**

**HACKUMASS X | BEST USE OF TWILIO**

**COINDESK X TRADEBLOCK CRYPTO HACKATHON | 1ST PLACE**