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# Charitarth Chugh

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## EDUCATION

**UCONN**
**MATHEMATICS-STATISTICS**
Minor: Computer Science
Expected Graduation: May 2025

Relevant Coursework
Machine Learning • Data Science
Data Structures & Algorithms
Probability • Systems Programming
Applied Linear Regression

## 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
• AI Club does workshops, showcases, and projects around deep learning.
• Co-ordinated and lead weekly meetings, with topics such as PyTorch, Apache Spark, CNNs

## LINKS

GitHub:// **charitarthchugh**
LinkedIn:// **charitarth**
Twitter:// **@charitarthchugh**
Kaggle:// **charitarth**
Medium:// **@charitarth.chugh**

## WORK EXPERIENCE

**PROTECTION SHIELD** | MLE, Freelance
September 2023 - May 2024
- Worked on their AI team to build federated learning models to detect network attacks.
- Built baseline models on publically available datasets such as NF-UQ-NIDS v2.

## PROJECTS

**ENERGY JUSTICE MAPPING TOOL** | Data Science
July - August 2024
- As a key member of a multidisciplinary team, I contributed to the software and methodology development, working closely with stakeholders to identify areas with a lack of equitable energy infrastructure.
- Our proposal for a $7,500 grant was selected for the Clean Energy & Sustainability Innovation Program 2024, with a success rate of only 10% among applicants.
- Responsible for the integration and real-time analysis of geospatial data from 5+ data sources using GeoPandas
- Presented to White House officials and directors of Eversource Energy at the Clean Energy Summit 2024.
- Paper submitted to IEEE PESGM 2025

**SPARSEINST** | Computer Vision
September 2024 - Present
- Replicating the results of Sparse Instance Activation for Real-Time Instance Segmentation by Cheng et al. (2022), published at CVPR 2022
- Implementing SparseInst on ResNet-50, and investigating performace
- Utilizing PyTorch Lightning, FiftyOne and Weights and Biases for model training, testing, and evaluation.

**BOOKIE** | Full Stack
May 2022-July 2022
- Created a cross-platform bookmark manager using FastAPI, SQLite & Flutter
- Developed CLI interface, API, daemon and facilitated Python packaging
- Rewrote database for faster writes and updates, using recursive SQL database structure.

## RESEARCH

**UNDERGRADUATE RESEARCHER** November 2022 - Present
• Working under Dr.Derek Aguiar to combine LLMs and tabular models to predict motion outcomes in legal cases. Additionally, training models using parameter efficient fine-tuning for adversaial ML.

## AWARDS

**HACKHARVARD 2023** | Efficiency Boosters Prize
- Created SnipStudy, a product that helps students extract information from long form video content, such as video lectures, more efficiently.

**HACKUMASS X** | Best Use of Twilio

**COINDESK X TRADEBLOCK CRYPTO HACKATHON** | 1st Place