chandra gummaluru

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647-907-9818

SKILLS

Programming

Python (12 yrs) | Java (10 yrs) | C/C++ (8 yrs) | Scala (4 yrs)

Machine Learning

- NumPy (10 yrs)
- PyTorch (5 yrs)
- TensorFlow (2 yrs)

Robotics

- Arduino (8 yrs)
- ROS (2 yrs)

Data Science

- Matplotlib (5 yrs)
- R (3 yrs)
- Pandas (3 yrs)
- SQL (2 yrs)
- Power BI (2 yrs)

Other

- LaTex (8 yrs)
- OpenCV (5 yrs)
- MATLAB (5 yrs)

EDUCATION

M.ASc Computer Engineering

University of Toronto .... 2022 - Now

B.ASc Computer Engineering

University of Toronto ..... 2016 - 2021

EXPERIENCE

University Lecturer in Computer Science (AI/ML)

University of Toronto ..... 2021 - 2024

- Taught **over 1000 undergraduate students** across **6 courses** covering topics in **Artificial Intelligence** (AI), **Machine Learning** (ML), **Statistics**, and **Data Science**
- Key concepts include: Search Algorithms, Bayesian Inference, Stochastic Processes, Reinforcement Learning (RL), Supervised/Unsupervised Learning, Convolutional Neural Networks (CNNs), Convex Optimization, and Multi-Agent Systems
- Served as a **course coordinator** and managed **over 20 teaching assistants**
- Designed custom course notes/slides, assignments, and exams in **LaTex**
- Received course evaluations that consistently exceeded departmental averages and a **5/5** overall instructional quality on RateMyProfessor

Software Engineer

Coursera Inc. ..... 2019 - 2020

- **Led an engineering team** to develop a custom international payment system in **Scala** for Coursera's enterprise product, used by **50+ organizations**
- Wrote and maintained **20+ RESTful APIs** to enable sales teams to provide promotions and discounts to their clients
- **Provided detailed technical design documents** to guide engineers in implementing the system and non-technical summaries for key stakeholders

PUBLICATIONS

Optimizing Automated Transit Systems using Artificial Intelligence

University of Toronto ..... 2022 - 2024

- Developed **a new RL framework** to analyze the Travel Time Index (TTI) of different types of transit systems with **AI enabled** autonomous vehicles
- Trained **2 ML models** using supervised learning and Bayesian techniques to forecast travel demand patterns within the City of Toronto with **92.5%** test accuracy
- Ran **computer simulations** using a custom **Python** library to demonstrate how the model can be applied to reduce commute times within the City of Toronto by **25%**

Contour-Guided Image Completion with Perceptual Grouping

British Machine Vision Conference 2021

- Developed **a new algorithm** using **OpenCV** and **PyTorch** that automatically completes missing or occluded parts of images
- Performed **data collection**, **partitioning**, and **processing** to facilitate the training of machine learning models using CNNs
- Published a paper in the 2021 British Machine Vision Conference

Practical Architecture for Federated Machine Learning

University of Toronto B.ASc Thesis 2020

- **Developed a PyTorch library** to facilitate collaborative machine learning on encrypted data without the need for data centralization or decryption while maintaining performance
- Performed data analysis and produced visualizations using **Pandas** and **Power BI** to highlight the algorithm's performance on the MNIST Dataset of Handwritten Digits
- Recipient of the Certificate of Distinction (awarded to less than 5% of projects)

CLUBS

Navigation and Path Planning Lead

University of Toronto Robotics Association ..... 2019 - 2021

- **Led a team of 10+ students** in developing computer vision algorithms using CNNs for the 2021 International Ground Vehicle Competition (IGCV)