



chandra gummaluru

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SKILLS

Programming



Python
(12 yrs)



Java
(10 yrs)



C/C++
(8 yrs)



Scala
(4 yrs)

Machine Learning

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

Robotics

- OpenCV (5 yrs)
- MATLAB (5 yrs)
- SUMO Traffic Simulator (2 yrs)
- ROS (2 yrs)

Data Science

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

Other

- LaTeX (8 yrs)

EDUCATION

M.ASc Computer Engineering

University of Toronto2022 - Now

B.ASc Computer Engineering

University of Toronto2016 - 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, Neural Networks, 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 a team of engineers** to develop a custom payments system in **Scala** to support international transactions for Coursera's enterprise product, used by **over 50 organizations**
- Wrote and maintained several **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 Toronto2022 - 2024

- Developed a **new mathematical framework** to analyze the Travel Time Index (TTI) of different types of transit systems with **AI enabled** autonomous vehicles
- Trained an **ML model** 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

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
- Published a paper in the 2021 British Machine Vision Conference

Practical Architecture for Federated Machine Learning

University of Toronto B.ASc Thesis2020

- **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 Association2019 - 2021

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