Jeffrey Chen

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https://www.linkedin.com/in/jeffrey-y-chen/ US Citizen

Areas of Expertise: Machine Learning, Artificial Intelligence, Deep Learning, Programming, Data Engineering, Data Analysis, Mathematics, Problem Solving, Communication
Machine Learning: PyTorch, TensorFlow, LLM, LSTM, CNN, RNN, SVM, Sequence to Sequence, Keras, NVIDIA Triton, NVIDIA FasterTransformer, DeepSpeed FastGen
Languages/Tools/Systems: Python, MatLab, R, Java, Bash, SQLite, Git, Windows, Linux, iOS

Ph.D. student in Computer Science at the University of Virginia, with a strong background in mathematics from Columbia University. 3 years work experience as an AI Engineer. Skilled in Python, MatLab, R, and more, with expertise in ML Framework PyTorch and TensorFlow, as well as extensive experience with LLM, LSTM, CNN's, and more. Currently contributing to the Chandra Robot Autonomy Lab, working at the intersection of visual navigation and control theory, with a focus on advancing multi-robot navigation systems. Previous experience as Artificial Intelligence Engineer at MITRE Corporation, working with DL for self-driving cars, NLP with text databases, and AI-based RF Mimicking tools. Active involvement in innovative CS projects at the University of Virginia.

EDUCATION

Ph.D. Student, Computer Science
University of Virginia
August 2023 - Present
Charlottesville, VA

Master of Science, Applied Mathematics
Columbia University
December 2020
New York, NY

Bachelor of Arts, Mathematics
Washington University in St. Louis
December 2018
St. Louis, MO

Relevant Coursework

Natural Language Processing; Learning for Interactive Robots; Cloud Computing; Signal Processing, Machine Learning and Control; Neural Networks & Deep Learning; Hyperparameter Tuning; Regularization & Optimization; Stochastic Modeling; Algorithms, Data Structures; Partial Differential Equations; Computational Mathematics; Mathematical Statistics

Certifications

Deep Learning Specialization | coursera.org (L3T5YBLSU7UK)

Test Scores

GRE: Q: 170, V: 170 (Perfect Score), ACT: 36 (Perfect Score)

PROFESSIONAL EXPERIENCE

University of Virginia
Chandra Robot Autonomy Lab (CRAL) Charlottesville, VA August 2023 - Present

- Conducted cutting-edge research in robotic navigation at the intersection of visual navigation and control theory, focusing on developing innovative approaches to enhance the safety and efficiency of multi-robot systems
- Designed and implemented advanced algorithms and simulation environments to address challenges in robot navigation, ensuring both safety and liveness in multi-agent navigation scenarios

MITRE Corporation McLean, VA, January 2021 - August 2023

Intermediate Artificial Intelligence Engineer

- Developed deep learning models, performed computer vision and scene segmentation, and did data analysis for the development of self-driving cars, determining the best behaviors for autonomous vehicles to take
- For efforts in developing AI/ML based RF Mimicking tools, wrote Python software to simulate Bluetooth wireless communication; iteratively developed, trained, and tuned AI/ML generative models to optimize the learning of such signals
- Developed processing pipelines for multiple text databases; utilized Natural Language Processing and the Doc2Vec machine learning model to develop an automated process that makes matches between texts
- Developed a Tensorflow 2.0 implementation of the WaveNet machine learning algorithm for use in determining and identifying varying wireless communication signals
- Developed and fine-tuned PyTorch LSTM model for search bar autocomplete functionality
- Developed models for simulating cybersecurity attacks; deployed and modified graph algorithms to investigate and improve cybersecurity

Columbia University New York, NY, September 2019 - December 2020

Inverse Imaging Lab

- Worked on mathematical imaging inverse problems by modeling a relationship between the absorption coefficient and scattering coefficient of underlying medium
- Generated spatially dependent variable data to perform modeling between coefficients
- Used Matlab and Python to run multiple setups, including deep investigation between Fourier modes, to test the feasibility of finding a relation between the coefficients
- Assisted in writing mathematical proofs of the feasibility of this method

Spirent Communications San Jose, CA, Summer 2019

Video Parametric Machine Learning Intern

- Performed extensive data analysis on existing company video quality testing models to determine their accuracy; wrote analytical reports on whether to continue their use
- Built a new model in Python using support vector regression, trained on millions of scored images and their corresponding image quality
- Performed multiple regression, as well as Bayesian Optimization hyperparameter tuning, to improve models, enhancing scoring of low-medium quality video

PROJECTS

CS Projects at University of Virginia Charlottesville, VA, August 2023 - Present

- Developed a socially assistive robot in the AI2Thor environment that utilizes the Llama-2 70B LLM to make helpful everyday decisions for youth and elderly users
- Developed an application that performs human activity recognition of a smart watch user, determining whether the user is walking up stairs or not