Andre Ye

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Work and Research

Research Intern, Deepgram June 2022 – September 2022

Deepgram develops powerful deep speech recognition APIs for developers. At Deepgram, I developed novel curriculum training infrastructure and practices to target data contamination, correct problematic model behavior, significantly improve convergence speed, and improve performance in some cases while training large speech models on millions of hours of audio.

Teaching Assistant, Allen School March 2022 – Present

CSE 163, Intermediate Data Programming (Spr '22). Graded homework, hosted office hours, contributed to course material, taught weekly sections.

Human-Computer Interaction Research, Social Futures Lab @ Allen School February 2022 – Present

Working with PhD student Quanze (Jim) Chen in the HCI-centered Social Futures Lab to develop a data annotation protocol for high-stakes image segmentation problems like pathology to directly mark uncertainty into the data itself rather than inferring uncertainty from model outputs second-hand, the objective being to develop more robust and self-aware computer vision models.

Research Lead, Interactive Intelligence January 2022 – Present

Interactive Intelligence (I2) is an independent student research group at the UW focusing on developing human-like cognition in deep learning models. Leading the Emergent Language group to build deep learning models which develop "their own" novel system of language generation and interpretation.

Deep Learning Research, Najafian Lab @ UW Medicine March 2021 – May 2022

Developed a successful semantic segmentation deep learning system at the Najafian Lab, which explores the pathology of kidney diseases. Utilized complex data flows and advanced computer vision mechanisms to maximize model success. Created new techniques in the deep learning segmentation of high-precision, localized cellular objects.

Volunteer Data Scientist at CoronaWhy April 2020 – May 2021

CoronaWhy is an international group of volunteers working to analyze and model COVID-19 data to aid the pandemic. Worked with team members to develop Transformer models to search and synthesize COVID-19 literature; ran analyses of internal communication to boost team efficiency.

Research Presentations

- "Emergent Language: Independent AI Development of Human-Like Syntax". Research performed with Interactive Intelligence. Discovering AI @ UW Conference hosted by the eScience institute, May 23rd. Poster presentation.
- "A Novel Approach to Segment Specialized Annotations in Electron Microscopy Images of Glomerular Podocytes". Research performed with Najafian Lab for the Pathobiology of Kidney Diseases, UW Medicine. 25th Undergraduate Research Symposium at the University of Washington, May 20th. Oral presentation. Session proceedings and abstract.

Publishing and Authorship

Deep Learning Book Author

- *Modern Deep Learning Design and Applications*, May 2021 – December 2021. Unifies modern deep learning advancements and concepts through intuitive theory.
- *Deep Learning for Tabular Data*, September 2021 – August 2022 (releasing soon). A wide survey of deep learning applications to tabular data, one of the first published in the field.
- *Artificial Intelligence: A Self-Contained Approach*, June 2022 – August 2023 (under development). Aiming to robustly reconcile today's AI literacy problem, the book explores the technical side of AI in approachable terms, illuminates how AI is deeply embedded into familiar everyday technologies, and poses informed questions about AI regulation, philosophy, interaction, and usage.

Technical Reviewer November 2021 – Present

Testing code, determining the accuracy of author content, and making revisions and suggestions to increase clarity and communication in data science books. Completed: *Building Data Science Solutions with Anaconda* by Packt, *Deep Learning Model Optimization with Neural Network Intelligence* by Apress.

Data Science and Artificial Intelligence Writer and Editor March 2020 – April 2021

Have written over 350 data science and artificial intelligence articles here for various top data science publications. Awarded the Gold and Silver Medal from KDnuggets; Top Writer in AI and Technology by Medium. View a list of curated articles here.

Competitions and Awards

Top 1%, 4% and Top 5% in Kaggle Deep Learning Competitions November 2020 – June 2021

- Placed in the top 1% (16th place, Gold) out of of 4245 teams in the Jane Street Group Market Prediction Competition. Developed a denoising autoencoder and nonlinear NN topology to predict stock prices.
- Placed in the top 4% (Silver) out of of 4373 teams in the Harvard Laboratory for Innovation Science's Mechanisms of Action competition. Developed a solution over several months involving heavy feature engineering and an ensemble of deep neural network and TabNet models.
- Placed in the top 5% (Silver) out of of 1547 teams in the Royal Australian College of Radiologists Catheter and Line Position Challenge. Developed an ensemble of deep learning models to identify catheters in an X-ray and classify their placement. Used transfer learning, self-supervised learning, and extensive augmentation.
- Attained Kaggle Master rank, the top 2% position within the Kaggle community of over 160,000 data scientists.

Global Nominee for NASA Space Apps Hackathon October 2020

Coded and presented a solution for NASA's Space Apps Hackathon. Analyzed and modeled a large satellite-collected dataset from NASA databases to predict the economic impact of wildfires. Was selected as one of two nominees to represent our region in international judging by NASA, ESA, and other international space agencies.

Education

University of Washington Seattle, Washington

Double major in Philosophy and Computer Science. Early Entrance Program.

Technical Skills

Languages: Proficient – Python, Familiar – SQL, HTML + CSS + JS, PHP, Java
Libraries: TensorFlow/Keras, PyTorch, scikit-learn, numpy, pandas, matlotlib, seaborn, OpenCV, Flask
Other: LaTeX, Jupyter, bash, git