Ryan Chu

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EDUCATION

Northwestern University   Evanston, IL; Expected Jan 2025

Masters of Science in Computer Science

Cumulative GPA: 4.0, **Relevant Courses:** Deep Learning, Causal Inference

National ChengChi University   Taipei, Taiwan; Graduated June.2022

Bachelors of Science in Computer Science

Relevant Courses: Machine Learning, Data Mining, Social Computing, Data Mining

SKILLS

C/C++, Python, SQL, Javascript, C#, HTML/CSS, NodeJS, R, Generative Deep Learning, Data Engineering, API Development.
Scikit-learn, Pytorch, Tensorflow, Pandas, Numpy, Matplotlib, Azure, AWS, Github Actions, AWS

RELEVANT DATA SCIENCE EXPERIENCE

AIX:, *Software Engineer*   Evanston, IL; August 2023 - Present
- Fine tuned GPT 4.0 for to email summarization tool for businesses, utilizing **RAG** to retrieve relevant emails and **Langchain** to streamline LLM System
- Developed CI/CD workflow using Github Actions for auto deployment of systems to AWS

Spacebrainz, *Machine Learning Consultant*   Singapore/Remote; July 2022 - January 2023
- Worked with developers to incorporate **Stable-Diffusion** into a next-gen VR video game system, with the goal being to embed or rewrite in c++.
- Developed AI pipeline for stable-diffusion, ESRGAN upscaling and depth perception using python libraries. Code traced CompVis's open source stable diffusion source code. Result was a system where you can input some data, and an image of the input would be generated, as well as its 3D heatmap generated.
- Supported team members in C++/Libtorch migrations.

DoubleThink Lab, *Research Assistant*   Taipei, Taiwan; July 2022 - January 2023
- Worked with criminal law professors and machine learning scientists to identify and counter cybersecurity attacks and misinformation campaigns.
- Crawled and analyzed Taiwanese Yahoo News using Beautiful Soup, conducted EDA's, and held weekly meetings to strategize upcoming issues.

RESEARCH EXPERIENCE

Capstone Project: Understanding Echo Chambers on Social Media   NCCU; 2019-2022
- Using **graph similarity algorithms** and **classical ML** models to train and measure subreddits of different states and their political leanings. Comparing results to the presidential elections to see if swing states show political shift.
- Crawling and deciphering data from Reddit API services, and finding seed communities to base user activity on.
- We were able to quantize the political leanings of seemingly unpolitical subreddits, and find underlying relationships between them. For example, prove that r/healthcare is more Democrat leaning.

Deep Learning Projects   NU; 2023
- Created **VAE-GAN** model for handwritten number image generation
- Created **Transformer/RNN** on **pytorch** for Spanish to English translation device
- Fine tuned avatar LLM that utilizes the tone and vocabulary of celebrities that uses its tone of voice by extracting podcast data, and creating a token to trigger latent space connection. The result is a LLM that behaves normally, but when input includes the special token triggers the LLM to answer in the way of the avatar.

Northwestern University: Audio Interactive Lab   NU; 2024
- Worked with PhD students to develop HARPS, an audio deep learning tool that utilizes transformer models to create malleable music. This model takes a length of music (or other audio) , chops it up into segments, and fills the gaps with its next predicted audio input, this gives the ability to map music into latent space, and create methods to develop music such as merging the characteristics of two pieces of music together.

Northwestern University: Design Technology and Research Lab (HCI)   NU; 2024
- Assist in developing Small Human-AI tools for conceptualizing, aligning, and accounting for differences in expressing human situations and contexts to machines.
- Incorporates the field of **Machine Teaching**. Instead of training data, emphasizes the importance of designing the learning process in a way that efficiently and effectively transfers knowledge from humans to machines.

LANGUAGES & HONORS

Native Languages: English, Traditional Chinese

3rd Place - NU WildCat Fresh Hacks (2023), Preliminary Award - Careerhack TSMC x Microsoft Taiwan Corporation (Azure) (2022)