

Mingli Zhang

Green Card Holder, Program Finished Early, Available Immediately

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Major Projects

One Pixel Attack Defense - Defense against a special adversarial attack on CNN networks

Aug 2022 - Dec 2022

UNC - Chapel Hill

North Carolina, USA

- Researched a special adversarial attack called the **one-pixel attack** on **image recognition CNN networks** and how to defend from it using pre-processing technique.
- Implemented **seam carving** for a better pre-process resizing operation, which **reduced the attack success rate by 50%**.
- Learned how to tune a neural network and the computation power required during the training process to reach desired accuracy.

Fake News Detection - A Kaggle

North Carolina, USA

UNC - Chapel Hill

Oct 2020 - Nov 2020

- Experimented with different classification models with 3 teammates using the python library **scikit-learn**. The models tested were **logistic regression**, **Naive Bayes**, **support vector machine**, and **bi-directional LSTM recurrent neural network**.
- Created graphs and charts using **seaborn** and **pyplot** to visualize the correctness outcome of different models.
- We concluded that all four models produced **above 93% accuracy**, while LSTM has the highest accuracy, it is much more expensive computationally.

Work Experience

ChampionPDI - Created a powerful sales representative management platform for Cutco.

Jan 2023 - Sep 2023

Lead Software Developer - Freelance

North Carolina (hybrid), USA

- Led a team of 6 developers to create a sales representative management platform that gained **200+ users** from the first launch week.
- Employed a **serverless approach**, leveraging **HTML**, **CSS**, **VanillaJS**, and **WebPack** for the frontend, and **Firebase** to manage **hosting**, **authentication**, and **NoSQL** database.
- Transitioned the project to **React** post-launch to enhance user experience and performance.
- Introduced release management processes and automated deployment through **Github**, resulting in improved collaboration and efficient delivery.
- Conducted weekly scrum meetings, code reviews, and tech talks to ensure task transparency, on-time deliveries, and knowledge sharing for accelerated development.

Cymantix - A tech startup integrating machine learning with data analytics and information retrieval.

Oct 2021 - Feb 2023

Software Engineer

North Carolina (hybrid), USA

- Collaborated with 5 developers to create a **full-stack SaaS machine-learning-driven platform** that integrated a WebRTC video conferencing app, an information retrieval app, and a core identity API. The platform played a vital role in securing seed-round funding.
- Investigated using **Scikit-learn** of **Hierarchical clustering** to replace the **K-Means**, **reducing computation overhead by 10%-60%**.
- Incorporated **Microsoft Azure** into our platform, enhancing login options and facilitating seamless secured data transfer between our data retrieval app and Microsoft's cloud storage.
- Optimized real-time news analysis process on the data retrieval platform using **multithreading** and **Socket.io**, achieving a **90% acceleration**.
- Strengthened the critical data update pipeline with **Bash script**, **Python**, and **CronJob**, ensuring reliable and up-to-date PubMed data.

IBM - Worked on IBM's internal platform that provisions and customizes live demo environments

May 2021 - Aug 2021

Full Stack Developer Intern

North Carolina (remote), USA

- Enhanced user experience using **NextJS** for **12,000+ IBMers each month** by implementing intuitive improvements based on user feedback.
- Streamlined administrative content activities, resulting in faster content updates and a **reduction of 20+ redeployments per week** for developers.
- Co-founded an automated validation service with a fellow intern using **SailsJS** to simplify employee database maintenance, saving **three months' of manual operations annually**.

Education

University of North Carolina at Chapel Hill

Master's of Science in Computer Science

Aug 2022 - Aug 2023

- **Graduated GPA: 3.9/4.0.**
- **Courses:** Advanced Machine Learning, Digital Logic, Advanced Operating System.
- **Research:** Key-Value Store.

Bachelor's of Science in Computer Science and Mathematics

Aug 2018 - May 2022

- **Undergraduate GPA: 3.8/4.0**, Dean's List from 2018-2022.
- **Courses:** Algorithms and Analysis, Files and Database, 2D Computer Graphics, Quantum Computing, Modern Web Dev.
- **Research:** Web development and mobile development in health.

Skills

Coding	Python (Pandas, TensorFlow, PyTorch, NumPy, Scikitlearn. etc.), C/C++, JavaScript, SQLite, HTML/CSS
Technologies	Linux, Shell (Bash/Zsh), LaTeX, Tableau, Microsoft Azure, Firebase, Next/React, React Native, Flask, JQuery, CronJob, Elasticsearch
Soft Skills	Empathy, Communication, Time Management, Teamwork, Problem-solving, Documentation, Humor.