QINGYUAN YAO

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Education

Northwestern University   **Sep 2023 – Dec 2024**
Master of Science in Computer Science   *Evanston, IL*

New York University   **Sep 2019 – May 2023**
Bachelor of Art in Math and Computer Science   *New York, NY*
GPA: 3.81/4.0
Dean's List all semesters
Taken Course: Object-oriented Programming, Algorithm, Web Development, Operating System, Databases, Artificial Intelligence, Natural Language Processing, Computer Vision, Data analysis

Technical Skills

Programming Languages: Python, Java, C++, JavaScript, Go, HTML, CSS, SQL
Framework: Node.js, Express, React, Bootstrap, Flask, Django, Pandas, PyTorch
Tools: Git, Linux, AWS, Azure, MongoDB, PostgreSQL, MySQL

Experience

Northwestern University   **Dec 2023 – Now**
IT Research Computing Infrastructure Specialist   *Evanston, IL*
- Provide support for computational and data-driven research, assisting faculty and student researchers with high-performance computing needs

New York University   **Sep 2022 – May 2023**
Teaching Assistant   *New York, NY*
- Assisted the professor in course CS 2124 (Object Oriented Programming) for 2 semesters
- Led weekly 3 hours lab sessions with a cohort of 40 students, providing guidance on lab assignments

Chinese Academy of Sciences, Institute of Automation   **May 2022 – Aug 2022**
Research Assistant   *Remote*
- Conducted in-depth research in the field of vision-based robotic grasping
- Conducted comparative research between the Mask-RCNN model and the previous R-CNN model, focusing on aspects of speed and precision. Analyzed the strengths and weaknesses of each model in the context of specific application
- Implemented a pre-trained Mask-RCNN model that used Resnet-50-FPN as the backbone and fine-tuned it for dataset

OneClass Education Technology Co., Ltd   **May 2021 – Jul 2021**
Data Analyst   *Beijing, China*
- Developed automated Python tools to efficiently extract course-related information from diverse web server data sources
- Designed the relational database system by establishing Entity Relationship Model(ERM) and executed the implementation of the database framework using SQL, optimizing data storage and retrieval efficiency
- Built a web server with Python to accommodate user sign in/out requests and assisted the technical department to perform beta test for the 'Studemy' mobile application using SQL

Projects

Cloud-Native Photo Management Application | *JavaScript, Node.js, Express, AWS*   **Sep 2023 – Oct 2023**
- Architected a multi-tiered photo management application utilizing AWS services (EC2, S3, RDS, and Elastic Beanstalk) for robust and scalable cloud-native functionality
- Developed a RESTful API using Node.js and the Express framework to handle image uploads, downloads, and user interactions, effectively decoupling client requests from AWS service layer
- Implemented AWS S3 for secure image storage, managed image metadata using MySQL database on AWS RDS, and deployed the application onto AWS EC2 instances through Elastic Beanstalk, achieving efficient resource utilization, and easy scalability
- Utilized Handlebars to dynamically render web pages, providing an engaging user experience for photo management tasks

COVID-19 Question-Answering Chatbot | *Python, NLP, TF-IDF*   **Oct 2022 – Nov 2022**
- Developed an intelligent chatbot to simulate a healthcare professional's responses to COVID-19 related inquiries, providing accurate and timely information to users
- Researched on language embedding generation techniques such as Bidirectional Encoder Representations from Transformers(BERT) and utilized information retrieval method TF-IDF to automatically generate natural language on the back end
- Engineered the chatbot to engage users in interactive and informative conversations. Users could ask questions about symptoms, prevention measures, testing, and vaccination, receiving well-informed responses in natural language

Online Air Ticket Reservation System | *Python, Flask, MySQL*   **May 2022 – Jun 2022**
- Developed a comprehensive online air ticket reservation system, leveraging Python, Flask, and MySQL to emulate real-world booking processes for both customers and staff
- Designed relational database schema and entity relational model to store online transaction

- Built web-based application to connect with database using Flask and SQL
- Implemented customer-centric functionalities, including user authentication, flight viewing and dynamic search capabilities, and developed staff functionalities, including creating and modifying flight, and viewing reservations and customer information

Naive Bayes Text Classification | *Python, Naive Bayes, NLTK* **Apr 2022 – May 2022**
- Built Naive Bayes classifier for text classification using Python
- Utilized NLTK for data normalization and omitted stop words and evaluated the classifier quality with F1 scores and R-squared metrics

U.S. Epidemic Prediction Model | *Python, Epidemic Model, Data analysis* **Sep 2020 – Dec 2020**
- Extracted epidemic data from CDC and utilized Python to build epidemiologic model to conduct data analysis
- Utilized numerical method for solving linear system and made prediction for the inflection point
- Modified the model by considering government intervention measures and analyzed the correlation between each measure and its effect
- Utilized Python for data processing and image rendering and produced analysis reports using LaTeX