

KECEN YAO

New York University

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EDUCATION

New York University Shanghai

September 2020 – June 2024

Bachelor of Science in Computer Science

Shanghai, China

Bachelor of Science in Data Science (Concentration in AI)

- Cumulative GPA: 3.84/4.00, Major GPA: 3.96/4.00
- Selected Awards:

* Dean's List of NYU 2021-2023

* NYU Shanghai Hackathon Best Result Award

New York University

September 2022 – June 2023

NYU Study Abroad Program

New York, NY, United States

- Cumulative GPA: 3.96/4.00, Major GPA: 3.96/4.00

RELEVANT COURSEWORK

- Algorithms (A)
- Special Topic: NLP (A)
- Computer Systems Org (A)
- Multivariable Calculus (A)
- Data Structures (A-)
- Applied Internet Tech (A)
- Operating Systems (A-)
- Probability and Statistics (A)
- Machine Learning (A)
- Reinforcement Learning (Ongoing)
- Database Design & Implementation (A)
- Linear and Nonlinear Optimization (A)

EXPERIENCE

Machine Learning Intern @ UniDT Technology (Shanghai) Co., Ltd

August 2023 – Present

Supervisor: Dr. Xiaohua Xuan & Dr. Kehuan Shi, Algorithms Department

Shanghai, China

- Constructed and deployed a Large Language Model (LLM) called "Wisdom-Interrogatory" specifically designed for legal queries.
- Achieved massive legal data regularization, cleaning, and analysis; trained and fine-tuned the LLM.
- Improved the LLM's deploying website through developing the web development framework. Used Vue.js for improved user interaction on the front end and established a comprehensive database and API management on the back end.

Research Assistant & Tandon UGSRP member - AI4CE Lab @ New York University

December 2022 – Present

Supervisor: Professor Chen Feng, assistant professor of Civil and Urban Engineering at NYU Tandon

New York, NY, United States

- Worked on an energy-efficient multi-object/crowd detection algorithm tailored for edge devices, addressing the challenge of the limitations associated with high computing power and resource requirements in current deep learning models.
- Built a webcam data downloading pipeline and down-sampled video loading pipeline independently, contributing to a new street webcam streaming video database targeting crowd detection. Benchmarked the database using state-of-the-art energy-saving detection algorithms.
- Developed a reinforcement learning framework to achieve real-time dynamic video resolution selection, and trained it on the curated database.
- Achieved substantial reductions in computation time and energy consumption, rendering the algorithm highly suitable for deployment on resource-constrained edge cameras. Presented the demo on a webcam using the designed algorithm.

Research Assistant - NYU Multimedia and Visual Computing Lab @ New York University

July 2023 – September 2023

Supervisor: Professor Yi Fang, associate professor of Electrical and Computer Engineering at NYU Abu Dhabi and NYU Tandon

New York, NY, United States

- Successfully integrated pre-trained language model like GPT-4, visual language model like CLIP, and task-driven model such as GR-ConvNet, to develop a zero-shot learning system that can generate gestures for robot grasping and placing tasks using RGBD images.
- Developed a robust pipeline that enabled autonomous robotic self-checking through the implementation of Visual Question Answering (VQA), empowering the model to assess and validate its actions.
- Explore robotic simulation using ROS (Robot Operating System) and Gazebo, successfully running robotic arm simulation demos.

Research Assistant - NYU Shanghai Humanity Lab @ New York University Shanghai

May 2022 – May 2023

Supervisor: Professor Heather Lee, assistant professor of History at NYU Shanghai

Shanghai, China

- Performed data mining and analysis of the NYC historical Chinese Immigration database by leveraging SQL and Pandas.
- Implemented Machine Learning techniques, including XGBoost (XGB) and decision trees, to compensate successfully and effectively over 40% of the missing historic democracy data, improving the database's analytical capabilities.

SELECTED PROJECTS

Neutral Summarization for Framing Biased Articles | Python, Pytorch, T5

January 2023 - May 2023

- Developed an innovative approach to automatic neutral summarization using the T5 encoder and fine-tuned T5 decoder, proposing a solution for mitigating media framing bias caused by selective journalistic writing, aiming to foster social solidarity and reduce division among readers.
- Examined the model performance, demonstrating that it outperforms baseline model (Bert) by demonstrating excellence in Avg. Framing Bias metric (arousal) and Salient Info metrics (BLEU and ROUGE1-R), underscoring the model's ability to produce highly balanced and informative content.
- Proposed an innovative single-input-document neutral summarization architecture, which can be applied to the real world sector.

School Forum - Web Development Project | JavaScript, HTML, MongoDB, Vue

January 2023 - May 2023

- Developed a full-stack web development project incorporating front-end and back-end technologies, including Express, Handlebars, and Mongoose.
- Innovated a successful and fully functional online forum website encompassing essential features such as user authentication (login/register), post creation, commenting, deletion, and liking/disliking posts.
- Implemented robust data management via storing and retrieving data from a MongoDB server to ensure seamless user interactions on the platform.

NYC Taxi Prediction - Machine Learning Projects | Python, Pytorch, Sklearn

January 2022 - May 2022

- Established commonly used frequently-used machine learning models to forecast future taxi cab demand in New York City.
- Conducted thorough data cleaning and preprocessing of New York City taxi data which were obtained from the official website, utilizing Pandas and NumPy to achieve effective data manipulation and employing standard machine learning techniques such as Test-Train-Split and Cross-Validation.
- Implemented supervised learning clustering algorithms in Python, such as Linear Regression, Tree-based models, KNN (K-Nearest Neighbors), and Recursive Neural Network (RNN). Generated an outstanding model performance, with the best-performing model (RNN) attaining an impressive R2 score exceeding 0.99, demonstrating exceptional predictive accuracy.

Teddy Bear - Self-developed 3D game | C#, Unity

January 2022 - May 2022

- Developed a Unity-based 3D parkour game independently which featured self-developed scripts, models, settings, audios, etc.
- Created the innovative Gameplay, which involves jumping, wall sliding, scene traversal, item collection, and death checkpoint.

TECHNICAL SKILLS

Programming Languages: Python (proficient), C/C++, C#, JavaScript, HTML, CSS, SQL, MATLAB

Technologies/Frameworks: Linux, Git, Docker, MongoDB, Unity

Machine Learning: PyTorch, KNN, CNN, RNN, Transformer, LSTM