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JUNYANG HE

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EDUCATION

University of Virginia, Charlottesville, VA *Expected May 2025*
Bachelor of Science in Computer Science | Minor in Applied Mathematics *Major GPA: 3.95/4.0*
Core Courses: Machine Learning, Natural Language Processing, Linear Algebra, Statistics, Algorithms, Software Development

PUBLICATIONS

Junyang He, Ying-Jung Chen, Anushka Idamekorala, Geoffrey Fox. **Science Time Series: Deep Learning in Hydrology**. Submitted to the Journal of Geophysical Research: Machine Learning and Computation. Preprint: https://arxiv.org/abs/2410.15218.

Taiyi Pan, **Junyang He**, Chao Chen, Yiming Li, Chen Feng. **NYC-Event-VPR: A Large-Scale High-Resolution Event-Based Visual Place Recognition Dataset in Dense Urban Environments**. Submitted to the 2025 IEEE International Conference on Robotics and Automation (ICRA). Preprint: http://arxiv.org/abs/2410.21615.

RESEARCH EXPERIENCE

Deep Learning in Hydrology | *Research Assistant* *April 2022 – Present*
Advisor: Geoffrey Fox (Professor of Computer Science, University of Virginia)
- Standardized a data-driven approach to spatio-temporal series analysis demonstrated by the use of LSTM in rainfall-runoff modeling.
- Assessed applications of large foundational models in hydrology spatio-temporal series analysis by leveraging the Nixtla framework.
- Processed data with Pandas, constructed an LSTM model and tuned hyperparameters with TensorFlow, and evaluated model fitting.
- Presented results at the 2024 C4GC Symposium and won the Audience Choice Award at the 2024 UVA LLM Workshop.
- Designed benchmarking and exogenous variable experiments and drafted paper, “Science Time Series: Deep Learning in Hydrology.”

NYU AI4CE Lab | *Summer Research Assistant* *May 2024 – September 2024*
Advisor: Chen Feng (Associate Professor, New York University)
- Researched the use of event camera data in training visual place recognition models for solving the autonomous vehicle SLAM.
- Compared effectiveness of NetVLAD, MixVPR, and Anyloc models trained with NYC event data at 5m, 15m, and 25m thresholds.
- Authored sections on benchmarking experiments and the impact of event data for the paper, “NYC-Event-VPR.”

K-means with Poisson Disk Sampling | *Independent Research* *July 2020 – September 2020*
Advisor: David Perkins (Visiting Assistant Professor of Computer Science, Hamilton College)
- Enhanced accuracy of K-means clustering by integrating Poisson disk sampling to initialize cluster centers.
- Constructed the K-means model in Python, tested hypothesis on the Iris dataset, and wrote a research paper.

PROFESSIONAL EXPERIENCE

DealCompass, South Bend, IN | *Software Engineering Intern* *June 2024 – July 2024*
- Integrated Slack and Gmail features into the DealCompass CRM product with the React framework and REST APIs.
- Developed the front-end to mimic actual Slack and Gmail software utilizing JavaScript, HTML, and CSS.

Zhongtiao Technology Co., Ltd., Shanghai, China | *AI Engineering Intern* *December 2023 – January 2024*
- Performed prompt engineering and reinforcement learning with human feedback on Alibaba Cloud's Qwen-14B foundation model.
- Collaborated with a 10-person agile team to fine-tune a customer service chatbot for Geely Auto, Cadillac, and Volkswagen.
- Built an automatic chatbot feedback testing algorithm utilizing optical character recognition, the Redis database, and Qwen API.

Nint (Shanghai) Co., Ltd., Shanghai, China | *Data Analytics Intern* *July 2021 – August 2021*
- Investigated the effectiveness of four different anomaly detection algorithms on company quarterly sales time series data.
- Preprocessed the names of 20,000 products on Taobao with Mandarin text vectorization and trained a natural language processing model with SmoothNLP to recognize intellectual property in product names.

PROJECTS

Counselor AI | *Co-Founder, Tech Lead* *October 2023 – Present*
- Led four engineers in the development of an AI-powered college counseling app for US high school and undergraduate students.
- Employed OpenAI's state-of-the-art GPT 4o model to provide intelligent, yet customized user guidance.
- Built the front-end with React Native, back-end with AWS-Amplify, and database with Amazon DynamoDB.

SKILLS

- **Programming:** Python, Java, C, HTML, CSS, JavaScript, SQL
- **Framework & Libraries:** TensorFlow, PyTorch/Keras, Sklearn, Pandas, NumPy, React, Django