Chen Qian

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EDUCATION

College of William & Mary 2023.08 - Present

Computer Science, *Ph.D. Student*

University of Virginia 2019.08 - 2021.12

Systems Engineering, *Master of Engineering* GPA: 3.80 / 4.00

China University of Geosciences (Wuhan) 2015.09 - 2019.06

Remote Sensing and Technology, *Bachelor of Engineering* GPA: 3.54 / 4.00

WORK EXPERIENCE

Machine Learning Engineer - LLM and Recommendation, JD.com 2022.01 - 2023.07

- **Project focus**: Participated in the development, fine-tuning, and implementation of a large-scale language model (ChatJD) tailored to the e-commerce domain. Pioneered applications in search and recommendation areas, culminating in the creation of an intelligent shopping assistant using LLM to meet diverse user needs.
- Developed an industrial version of ChatGPT for retail and finance, setting new standards for complex tasks within the e-commerce sector.
- Utilized techniques like P-tuning and LoRA to fine-tune ChatJD, optimizing efficiency for scenarios such as product title generation, search suggestions, and product pairing.
- Built an innovative intelligent shopping assistant with LLM, linking real-time product data, serving over 10k users daily. This marked the first application of LLM in e-commerce shopping assistance and led to a 17.3% increase in user engagement.

Machine Learning Engineer Intern - CV and AI, Tencent 2021.05 - 2021.12

- **Project focus**: Played a critical role in developing a Spatio-temporal big data platform and remote sensing image analysis model library.
- Proposed an innovative image recognition method combined with an annotation scoring mechanism, optimized the annotation workflow in a semi-supervised manner, and developed a specification for multi-source heterogeneous data storage, reducing annotation time by 80%.
- Conducted semantic segmentation model framework, designed a feature-oriented style migration classification method and a model fusion strategy based on weight prediction, enhancing model performance by 5.6%.

Graduate Research Intern, Human AI Technology Lab (UVA) 2020.08 - 2021.03

- **Project focus**: Spearheaded the mining of human behavior patterns based on multi-source data streams, influencing critical healthcare decisions.
- Collected and analyzed cell phone and smartwatch data from patients within 60 days after discharge from the hospital, aiding physicians' decision-making process.
- Simulated and predicted the trend of patients' readmission risk for the first time by building a long short-term memory network model, providing valuable insights to healthcare providers.

Graduate Research Intern, Spatial Computational Intelligence Lab (CUG) 2018.09 - 2020.06

- **Project focus**: Successfully coupled artificial intelligence to simulate urban development, shaping the future of urban planning.
- Processed millions of user data from Wuhan and Shenzhen, unraveling the connection between user portraits and urban development by building robust deep learning computational models to process multi-source image data.
- First-ever discovery of the unity and validity of different observation modes (social perception, satellite remote sensing, and street view images) in representing socio-economic characteristics, contributing to a new understanding in the field.

SELECTED PROJECTS

Creation of an Intelligent Shopping Assistant Based on LLM 2023.05 - 2023.07

- Designed and implemented a groundbreaking intelligent shopping assistant pipeline, integrating LLM with real-time product data to provide personalized shopping experiences.
- Developed a system capable of engaging in multi-turn interactions with users, answering questions, and recommending relevant products based on user's preferences and inquiries, enhancing user engagement by 17.3%.
- Pioneered the application of LLM within the shopping assistant realm, successfully launching on a small scale and serving over 10k users daily. Continues to drive expansion and innovation within the e-commerce space, setting new industry standards.

Fine-Tuning for LLM in Search and Recommendation Domain 2023.03 - 2023.05

- Led the fine-tuning of the LLM to specifically cater to the unique search and recommendation needs of the e-commerce sector, ensuring a seamless user experience.
- Employed advanced parameter fine-tuning techniques such as P-tuning and LoRA, successfully reducing training costs by a remarkable 90%, paving the way for a more cost-efficient and effective system.
- Achieved a significant 8-fold improvement in generative efficiency through architectural optimizations and batch prediction methods, enabling faster and more precise generation results.
- Successfully empowered various e-commerce scenarios, including product highlight/title generation, search query suggestions, and product pairing recommendations, contributing to a 4.6% increase in conversion rates.

AAAI 2021 Student Technical Volunteer 2020.11 - 2021.02

- Developed and maintained the AAAI 2021 virtual meeting platform, designed functional modules and page layouts, ensuring a smooth experience for attendees and organizers.
- Optimized the attendee feedback response process by automatically extracting key information from emails and manually re-checking, resulting in a 60% reduction in response time and enhancing attendee satisfaction.

PUBLICATION

- Qingfeng Guan, Jianfeng Zhou, Ruifan Wang, Yao Yao*, **Chen Qian**, Yaqian Zhai, Shuliang Ren. (2022). Understanding China's urban functional patterns at the county scale by using time-series social media data. *Journal of Spatial Science, 1-19*.
- **Chen Qian**, Patraporn Leelaprachakul, Matthew Landers, Carissa Low, Anind K. Dey, Afsaneh Doryab*. (2021). Prediction of Hospital Readmission from Longitudinal Mobile Data Streams. *Sensors, 21(22), 7510*.
- Yao Yao, Jiale Wang, Ye Hong, **Chen Qian**, Qingfeng Guan*, Xun Liang, Liangyang Dai, Jinbao Zhang. (2021). Discovering the homogeneous geographic domain of human perceptions from street view images. *Landscape and Urban Planning, 212, 104125*.

- Yao Yao, Jiaqi Zhang, **Chen Qian**, Yu Wang, Shuliang Ren, Zehao Yuan, Qingfeng Guan*. (2021). Delineating urban job-housing patterns at a parcel scale with street view imagery. *International Journal of Geographical Information Science*, 35(10), 1927-1950.
- Yao Yao, **Chen Qian**, Ye Hong, Qingfeng Guan*, Jingmin Chen*, Liangyang Dai, Zhangwei Jiang, Xun Liang. (2020). Delineating mixed urban "jobs-housing" patterns at a fine scale by using high spatial resolution remote-sensing imagery. *Complexity, 2020*.

SKILLS

- **Programming**: Python, JavaScript, SQL, HTML5, Java.
  Strong capability in applying machine learning algorithms to solve practical problems, and implementing data mining methods and visualization techniques.
- **Tools**: Tensorflow, Pytorch, Hadoop, Hive, Presto.
- **Others**: MS Office (Word, Excel, etc), Zotero, Adobe Photoshop.

NOTICEABLE EXPERIENCE

- Chief of Modern Chinese Orchestra. Organized and participated in school-level shows in 2017 and 2018.
- Captain and coach of the School of Information Engineering football team. Won several campus championships.