Hai Jiang
Shenzhen, Guangdong, China
+86 19867713757
jiangh14@lzu.edu.cn

Admission Committee
Oxford & TUM
Logistics and Supply Chain Management

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Dear Members of the Admissions Committee,

I am writing to express my enthusiastic interest in the PhD position in Human-AI Interaction and Operations Management at the Technical University of Munich (TUM). With a robust foundation in AI/ML research, hands-on experience in translating theoretical frameworks into real-world solutions, and a strong alignment with TUM's interdisciplinary ethos, I am eager to contribute to your research group's pioneering work at the intersection of human decision-making and artificial intelligence.

During my Master's in Computational Mathematics (2019-2022), I specialized in **Generative Adversarial Networks (GANs)**, focusing on style transfer applications. My thesis, *"GANs for Personal Style Imitation of Chinese Handwritten Characters,"* involved developing an end-to-end CycleGAN framework to replicate the calligraphic style of Shiling Shen Chern. By optimizing adversarial training and incorporating domain-specific preprocessing, I achieved 85% visual similarity across 220 characters—a 10% improvement over baseline models. This work honed my expertise in GAN architecture design, data augmentation, and cross-domain adaptation, while reinforcing my passion for bridging technical innovation with human-centric applications.

Post-graduation, I joined Sun Yat-sen University's **Computational Medical Imaging Lab**, where I led AI-driven projects with clinical impact. For instance, I designed a **multi-task learning model** to classify Placenta Accreta Spectrum Disorder severity using T2-WI MRI images, achieving an **AUC of 0.80**. In another project, I developed a CNN-based system to predict breast cancer metastasis in Sentinel Lymph Nodes via dual-energy CT scans, attaining an **AUC of 0.85** in cross-validation. Beyond algorithmic development, I spearheaded end-to-end workflows—from curating heterogeneous DICOM datasets to deploying models on hospital servers—culminating in two first-authored papers (one published, one under revision). These experiences underscored my ability to navigate interdisciplinary challenges and deliver scalable AI solutions.

Your program's emphasis on **Human-AI Interaction** uniquely aligns with my aspiration to explore how AI can augment human decision-making in complex operational environments. I am particularly drawn to Dr. Kejia Hu's research on human-algorithm collaboration in business contexts, which resonates with my goal to design **cooperative AI frameworks** that balance technical rigor with human intuition. For example, my work in medical imaging required close collaboration with clinicians to ensure models addressed practical diagnostic needs—a precursor to the human-in-the-loop systems I aim to develop during my PhD.

Moreover, TUM's partnerships with industry leaders and access to cutting-edge facilities, such as the TUM School of Logistics and Supply Chain Management group, provide an ideal environment to investigate operational challenges like resource allocation and strategic planning in AI-driven settings. I am keen to contribute to projects exploring human biases in AI-assisted logistics or adaptive learning systems for dynamic supply chains.

Long-term, I aspire to pioneer **Human-AI Interaction** that harmonize computational precision with ethical and societal considerations. This PhD would equip me with the interdisciplinary toolkit—spanning behavioral science, operations research, and machine learning—to establish a research lab focused on human-AI symbiosis. TUM's emphasis on translational research and its vibrant academic network will be instrumental in realizing this vision.

I am confident that my technical expertise, passion for interdisciplinary collaboration, and alignment with TUM's strategic priorities position me to thrive in your program. I would welcome the opportunity to discuss how my background could support your ongoing initiatives, such as optimizing human-AI teamwork in high-stakes operational scenarios. Thank you for considering my application. I look forward to contributing to TUM's legacy of innovation and impact.

Sincerely,

Hai Jiang