ZHENGSHEN ZHONG

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EDUCATION

Guangzhou University, School of Management Sept. 2023 - Sept. 2027

B.M. in Engineering Management (Management Science and Engineering)

- **GPA: 3.90/4.00**; Average: **94/100**; Rank: **1/101**; eligible for postgraduate recommendation.
- **Selected Coursework:** Operations Research, Management, Database Fundamentals & Python Programming, BIM Technology, Engineering Structures, and Economics.
- **Minor:** Metaverse Intelligent Decision-Making and Human-Computer Interaction.

The University of Hong Kong, School of Computing and Data Science Visiting Program

- Completed an AI and Robotics program covering computer vision, SLAM-based autonomous navigation, and large models for humanoid robots; visited SenseTime and other technology companies.

RESEARCH EXPERIENCE

Deep Representation Learning for Ecological Risk Topic Modeling in Major Engineering Projects

Core researcher; published in Journal of Guangzhou University | National Undergraduate Innovation Project

- Built a **BGE-M3–UMAP–KMeans–BERTopic** pipeline to analyze cross-project literature, identify eight ecological-risk themes, and link risk types, engineering disturbances, ecological receptors, and governance strategies.
- Conducted LDA benchmarking and HDBSCAN sensitivity analysis; established **24 traceable evidence chains** to support risk identification, source tracing, and differentiated governance.

Bridging Data Silos in Cost Estimating: An Agent-Augmented Federated Learning Approach

First author

- Developed a horizontal federated-learning setting using Florida highway project data and introduced a **multi-agent dynamic aggregation mechanism** that adjusts client weights according to real-time training states.
- Reduced MAPE by **6.81%** versus FedAvg while cutting communication rounds by approximately one-third, improving accuracy and adaptability for privacy-preserving cross-region cost estimation.

AI-Enabled Refined Operations and Maintenance Management for Engineering Projects

Core researcher; completed project

- Built a construction-safety knowledge base from **53,550 accident records** and designed a risk-assessment workflow integrating RAG, large language models, and two-stage hybrid retrieval.
- Developed the intelligent O&M platform with embedding models and FAISS, adding evidence constraints and output validation for traceable risk levels, hazards, controls, and historical cases.

INTERNSHIP EXPERIENCE

Tongwang Technology Co., Ltd. | Product Assistant Intern

- Supported highway cost-estimation software iteration and competitor research; standardized **40,000+ quota records** into development-ready Excel and HTML formats.
- Automated file conversion and validation with Codex, improving repetitive workflow efficiency by approximately **80%**.

TECHNICAL SKILLS

- **Programming & Analytics:** Python, SQL, Pandas, Scikit-learn, SPSS, SEM, machine learning, and text mining.
- **AI & Development:** Codex,Claude Code, Coze, Dify, RAG, WeChat Mini Programs, and rapid system prototyping.
- **Languages:** CET-6: 452; CET-4: 484

COMPETITIONS & HONORS

- **National Second Prize (Team Lead),** National College Student Digital Media Technology Works and Creative Competition.
- **National Second Prize,** National College Business Elite Challenge - Accounting and Business Management Case Competition.
- **National Third Prize,** National College Student Market Survey and Analysis Competition.
- **Guangdong Provincial Bronze Award (Team Lead),** National College Student Career Planning Competition.
- **Scholarships & Service: National Scholarship**; First-Class University Scholarship; Outstanding Student; 341+ volunteer hours and Outstanding Volunteer at the 15th National Games Opening Ceremony.