Qi Zhang

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https://archiezq.github.io/qizhang.github.io/
https://github.com/archiezq

Education

09.2023 – Present **University Van Amsterdam**
Master, Computational Science
Courses: *Machine Learning, Evolutionary Computing, Numerical Algorithms, Complex System Simulation, Agent Based Modelling, Stochastic Simulation, Computational Finance, Quantitative Risk Management*
Thesis: *System Dynamics Models of Blood Pressure Regulation*

09.2019 – 06.2023 **North China Electric Power University**
Bachelor, Energy and Power Engineering (Renewable Energy)
Courses: *Fluid Mechanics, Heat Transfer, Renewable Energy Techniques and Energy Systems.*
Thesis: *Thermal Management in Lithium-Ion Batteries Using Immersed Phase Change Materials*

Work Experience

07.2024 – 08.2024 **Research Intern**, Chinese Academy of Sciences
- Built a Flask-based alert management system with user login and role-based access.
- Enabled multi-channel notifications via Email, SMS, and WeChat.
- Developed de-duplication and compression logic to ensure system reliability during high-volume alert events.
- Deployed LLMs to interpret alerts and support decision-making.

Research Experience

11.2024 – 07.2025 **Thesis: System Dynamics Models of Blood Pressure Regulation**, University Van Amsterdam
- Developed an integrated computational model combining baroreflex, cerebral autoregulation and oxygen transport mechanisms.
- Applied evolutionary algorithms to optimise multi-input parameters; ran optimisation on a high-performance computer.
- Designed a method to compare simulation results with the real clinical data.

05.2024 – 07.2024 **Opinion Polarization: Conformity and Cross-group Contact**, University Van Amsterdam
- Developed an agent-based model (**ABM**) using Python to analyse the effects of cross-group contact on social polarisation.
- Applied modularity and Altieri entropy to evaluate opinion polarisation.
- Conducted global and local sensitivity analyses such as One-Factor-At-a-Time (OFAT) to determine the impact of various parameters on the model's outcomes.

01.2024 – 05.2024 **Computational Finance and Quantitative Risk Management**, University Van Amsterdam
- Implemented advanced computational techniques like the Black-Scholes equation, PDE(finite differences method), and the COS method to price European and American options.
- Explored hedging strategies through Euler's method, examining how variations in stock and delta volatility affect hedging performance and cash positions.
- Developed and validated risk models using Value at Risk (VaR) and Expected Return (ER).
- Used copula simulations, PCA, and FA for in-depth analysis of asset dependencies.

Skills

Languages English(C1), Chinese(Native).
Coding **Python**(Strong), **R**(Intermediate), **Matlab**(Intermediate), **C**(Basic)
Software SolidWorks(Strong), COMSOL(Strong), AutoCAD, Tableau, LaTeX
Others. Linux, Flask, HTML, SQL

Scholarships and Awards

2022 **National First Prize**, China Engineering Robotics Competition
University Scholarship 2020-2022, NCEPU.