ZIHAN QIU

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EDUCATION

University of Illinois at Urbana-Champaign Aug 2023 – Expected Dec 2025
Master of Computer Science GPA: 3.60/4.00

- **Courses:** Natural Language Processing, Practical Statistical Learning, Computational Photography, IoT, Software Engineering, Methods of Applied Statistics, Computer Security II, Applied Machine Learning, Advanced Bayesian Modeling

University of Illinois at Urbana-Champaign Aug 2020 – Aug 2023
Bachelor of Science in Computer Science (**with Honors**) GPA: 3.56/4.00

- **Courses:** Object-Oriented Programming, Data Structures, Algorithms & Models, Computer Architectures, Software Design,System Programming, Database Systems, Data Mining, Data Visualization, Artificial Intelligence
- **Scholarship: U of I Foundation Scholarship**

WORK EXPERIENCE

State Farm Champaign, IL
MAGNet Intern (Spring) - HLDI Vehicle Rating GLM for Collision Coverage Jan 2025 – May 2025

- Designed a **Generalized Linear Model (GLM)** with **Tweedie Regression** using **Scikit-learn** and **statsmodels** on **AWS SageMaker** to predict vehicle collision pure premiums from **10M+** records, achieving an exceptional **2.85 lift** and **0.135 Gini coefficient** for risk ranking; managed model experimentation and versioning with **mlflow**.
- Conducted **EDA** and **feature engineering** via **PCM templates**; implemented **supervised binning**, **one-hot encoding**, and **weight-of-evidence transformations** to ensure linearity, address missing data and boost generalizability; employed **correlation matrices** and **VIF** to diagnose and resolve multicollinearity, enhancing model robustness.
- Explored Feature importance & Interactions using **Xgboost**, engineered new predictors that amplified predictive power while reducing collinearity.
- Conducted **Posterior EDA** to validate linearity and monotonic relationships between predictors and response. Subsequently built a standardized scorecard to serve as a reference for ongoing actuarial research and production scoring.

MAGNet Intern (Summer) – Text Mining at Scale with Large Language Models *May* 2025 – Present

- Developing an end-to-end **LLM-driven** pipeline for large-scale call-center transcript analytics using **LangGraph**, **AWS Bedrock,** and **SageMaker Studio**; current focus includes summary generation and taxonomy induction from customer-agent call transcripts to support intent classification and downstream automation.
- Built a scalable **MapReduce-style** summarization node to asynchronously process **15,000+** transcripts using State Farm **GaaS-hosted** LLMs to ensure data privacy through guardrail anonymization; applied **prompt engineering** for consistent, high-quality outputs across diverse conversation types.
- Designing and iterating on a taxonomy generation pipeline using multi-step LLM prompting to identify, refine, and structure hierarchical customer intent categories from summary-level transcript batches.

PROJECT

AWS Presents: Breaking Barriers Virtual Challenge Champaign, IL
SignFrame Translator: Real-Time Sign-to-Gloss Pipeline May 2025 – Jun 2025

- Engineered a real-time sign-language detection pipeline by fine-tuning a **YOLOv10** model on custom datasets and deploying inference at the edge via **AWS SageMaker**.
- Orchestrated a **LangGraph** workflow that converts frame-level gloss tokens into coherent sign-language sequences and invokes an AWS Bedrock LLM to generate fluent English translations.
- Leveraged cloud GPU instances to train the YOLOv10 model for 1,000 epochs, optimizing parameters to reduce overfitting and enhance convergence stability, achieved over 90 % detection accuracy on live webcam.

TECHNICAL SKILLS

Programming: Python, Java, C/C++, HTML/CSS, JavaScript, Verilog, R, MIPS/x86-64 Assembly, Haskell, Swift, MATLAB
Frameworks: Backend (Spring, Flask, Django), Database (MySQL, MongoDB), Frontend (React, Vue3), Deploy (Docker, k8s)
Tools: AI/ML(Pytorch/Tensorflow,pandas,numpy) Raspberry Pi, Construction(EC2,S3,ElasticLoadBalancer,CloudFront,RDS)