

# Qi Zhang

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## CONTACT INFORMATION

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## EDUCATION

### **Tsinghua University (THU)**

Master of Engineering

September 2021 – Present

- GPA: 3.93/4 (Department Ranking within Top 7%)
- Research Interests: A 3D Fire Source Location Model based on Neural Network

### **China University of Mining and Technology, Beijing (CUMTB)**

Bachelor of Engineering

September 2017 – June 2021

- GPA: 3.69/4 (Department Ranking within Top 10%)

## RESEARCH EXPERIENCE

### **National Key R&D Program of China**

December 2021–Present

- Modeling the actual three-dimensional structure of the warehouse and constructed a scenario library containing over 40000 pieces of simulation data.
- Established a warehouse deep fire traceability and localization model for realizing 3D positioning based on LSTM Neural Network.

### **Research Projects of National Ministries and Commissions**

2022

- Based on descriptive statistics combined with regression algorithms such as XGBoost and RandomForest for loss prediction, then a pre-supervision model for grain storage is proposed which is applied to the China Grain Reserve Management Platform.
- Supervised new grain acquisition through quantitative analysis of risk indicators and correlation analysis and used Neo4j graph database for monitoring abnormal behavior.

### **Analysis of Monitoring Data for Urban Safe Operation Program**

2022

- Drawn Pearson correlation analysis and autocorrelation maps based on the monitoring data of a certain month's water supply pipeline network.
- Used algorithms such as One-Class SVM, Isolation iForest, Elliptic Envelope, DB-SCAN, etc. for anomaly detection of temporal data.

### **Analysis of Population Fertility Intention Assignment**

2022

- Improved the SIR fertility structure model applicable to predictions of female structure based on the state transformation process existing in the female fertility stage, the total population accuracy rate by prediction can reach 99.945%.
- Poster session and oral presentation at National Conference on Big Data Social Computing at Hangzhou, August 2022.

### **Applied Statistics Course Assignment**

2021

- Analyzed the influencing factors of building safety accidents through Multiple Linear Regression, Ridge Regression Analysis, Principal Component Regression, etc.
- Predicted safety development law of national construction industry based on RF.

PUBLICATIONS/ PREPRINTS	<b>Qi Zhang</b> , Difeng Zhu, Heng Zhang, et al. Prediction of Female Fertility Structure and Population Change in China by Modified SIR Model [C]. <i>Big Data and Social Computing</i> , 2022: 57-79. [ <a href="#">Link</a> ]	
	Yudie Jianyao, <b>Qi Zhang</b> , Liang Ge, et al. Technical methods of national security supervision: Grain storage security as an example [J]. <i>Journal of Safety Science and Resilience</i> , 2023, 4(1): 61-74. [ <a href="#">Link</a> ]	
	Heng Zhang, Zhanhui Sun, Zhifei Wang, <b>Qi Zhang</b> et al. Analysis of Influencing Factors of Birth Rate and Prediction of Policy Scenario [C]. <i>Big Data and Social Computing</i> , 2022: 309-331. [ <a href="#">Link</a> ]	
PATENTS	<b>Qi Zhang</b> , Beijing Xie, Yinuo Sun. <i>A Combined Sensor End Installation Device for Dynamic Calibration of SHPB</i> . (Patent No. ZL 201922144592.5)	
	Difeng Zhu, <b>Qi Zhang</b> , Sijia Sun. <i>A Novel of Blue Ice Automatic Fireproof Rolling Shutter Door</i> . (Patent No. ZL 202020823099.6)	
	Sijia Sun, <b>Qi Zhang</b> . <i>A Smoke Exhaust Auxiliary Device for Fire Protection Engineering</i> . (Patent No. ZL 202020810577.x)	
	Andong Chen, <b>Qi Zhang</b> , et al. <i>A fire detection device for building cable wells</i> . (Patent No. ZL 201922278478.1)	
	Andong Chen, Yinuo Sun, <b>Qi Zhang</b> . <i>A bundled cable well fire detection cable</i> . (Patent No. ZL 201922274049.7)	
AWARDS HONOR	The Second Prize Scholarship, Engineering Physics, Tsinghua University.	2022
	Outstanding Graduate, CUMTB.	2021
	Individual Scholarship, CUMTB.	2020
	National Encouragement Scholarship, CUMTB.	2020
	The First Prize Scholarship, CUMTB.	2019
	Merit Student, CUMTB.	2018
PERSONAL SKILLS	Programming	Python, MATLAB, R, C
	Applications	LaTeX, Microsoft Office
	Data	Origin, SPSS
	Analysis	Neo4j, SQL Server
	Simulation	FDS, CAD
	Softwares	ArcGIS, TerraExplorer
	Interests	Photography, Video Editing
	Languages	Chinese, English, Korean