

# ZHANG, Hongzhen

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My Personal Website: [Hongzhen's Personal Website \(hongzhengit.github.io\)](https://hongzhengit.github.io)

## Education Backgrounds

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**Tianjin University (member of 985, 211 universities)** 2017.09 – 2020.01, GPA: 85/100

Master's degree in Engineering. Main Courses: Stochastic Process, Optimization Method, and Signal Processing

**Xiamen University (member of 985, 211 universities)** 2013.09 – 2017.06, GPA: 82/100

Bachelor's degree in Engineering. Main Courses: Calculus, Linear Algebra, Numerical Analysis, and Probability.

Double degree in Mathematical Statistics. Main Courses: Mathematical Statistics, Multivariate Statistics, and Regression.

## Publications

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- **Extension of Terahertz Time Domain Spectroscopy: A Micron-level Thickness Gauging Technology**  
Hongzhen Zhang, Lili Shi, Mingxia He\*. *Optics Communications*, 506 (2022) 127597.
- **The Application of Stochastic Optimization Algorithm in Terahertz Thickness Measurement Technology**  
Hongzhen Zhang, Mingxia He\*, Lili Shi, Pengfei Wang. *Spectroscopy and Spectral Analysis*, 40(2020) 3066-3070.
- **A terahertz non-polar material detection technology based on Rouard's Method**  
with Mingxia He, Lili Shi and Pu Wang. *Invention patent*, Patent No. CN201910303091.9, Waiting for granting.
- **A thickness measurement technology developed with terahertz spectrum**  
with Mingxia He, Lili Shi and Pu Wang. *Invention patent*, Patent No. CN201811197783.1, Granted.

## Research Experiences

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### Research on the reconstruction methods for Terahertz Signals (Inverse Problem)

Tianjin University, Funded by National Natural Science Foundation of China (NSFC) (Grant No.61675151).

Highlights: Information Extraction Methods developed with Metaheuristic Optimization Algorithms (GA, DE) and LASSO.

### Research on a multispectral imaging device for meibomian glands of human eyes

Xiamen University, Undergraduate research project. Highlights: Model-based Image Enhancement.

### Research on HAR (Heterogeneous Autoregression) models for Shanghai Composite Index

Xiamen University, Graduation thesis (Double Degree). Highlights: Volatility Modeling with HAR and GARCH models.

## Working Experiences

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### Discover Financial Service (DFS, Shanghai COE) Senior Analyst, 2020.03 – 2022.07

- **Project 1: Volume Forecast Model.** Developed a Time Series Forecast Model for home loan application volumes to catch the increasing trend in home loan market and help with the future workforce management.
- **Project 2: NLP Text Analysis.** Constructed a Neural Network compliant recognizer based on pre-trained Bert model, combined it with a Random Forest classifier to allocate customers' complaints into some specific categories automatically. For non-labeled complaints, the Spherical k-Means algorithm was leveraged to find out their natural clusters and a Community Detection method (Louvain Method) was used to extract the buried topics (Topic Extraction).
- **Project 3: Data Management Platform.** Built an APP with PyQt framework for structuring and maintaining invoice data.

### Analog Devices (ADI, Beijing Office) Part-time Algorithm Intern, 2019.07 – 2020.01

- Took advantage of the Complex-domain LASSO algorithm to get a simplified Generalized Memory Polynomial (GMP) Model with sparse parameters.

## Awards

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- Innovation Award at Discover Financial Service
- Excellence Award at Discover Financial Service
- 1st prize of China National Mathematical Modeling Competition (Undergraduate Group)

## Programming Skills

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I have solid skills in Python, MATLAB and SQL language and I am also familiar with R software. For more information about myself and my research/working experiences, please check my personal website <https://hongzhengit.github.io/>.