ZHANG, Hongzhen

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My Personal Website: Hongzhen's Personal Website (hongzhengit.github.io)

Education Backgrounds

Tianjin University (member of 985, 211 universities) *2017.09 – 2020.01, GPA: 85/100*
Master's degree in Engineering. Modules: Stochastic Process, Optimization, Advanced Physics, and Signal Processing.

Xiamen University (member of 985, 211 universities) *2013.09 – 2017.06, GPA: 82/100*
Bachelor's degree in Engineering. Modules: Calculus, Linear Algebra, Numerical Analysis, and Analog/Digital Electronic.
Double degree in Mathematical Statistics. Modules: Mathematical Statistics, Multivariate Statistics, and Regression.

Publications*

- **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.

*All these publications are for the applications of my Signal Reconstruction methods.

Research Experiences

Research on the reconstruction methods for Terahertz Signals (Electro-magnetic Signals)
Tianjin University, Funded by National Natural Science Foundation of China (NSFC) (Grant No.61675151).
Highlights: Signal Reconstruction 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

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 for customer-facing agents.
- *Project 2: NLP Text Analysis*. Constructed a Neural Network compliant recognizer based on pre-trained Bert model, and combined it with a Random Forest classifier to automatically allocate customers' complaints into specific categories. For complaints that could not be labeled, the Spherical k-Means algorithm was leveraged to find out their natural clusters and a Community Detection method (Louvain method) was used to extract main topics of these complaints.
- *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

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

Programming Skills

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/.