HAN **BAO**

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ACADEMIC BACKGROUND

2017-2018

Master of Statistical Practice: Statistics & Data Science Department.
Carnegie Mellon University – Pittsburgh, PA, United States.
GPA: 3.99/4.00+*. **Courses:** Statistical Computing, Data Mining, Hierarchical Linear Models, Perspectives in Data Science II, Professional Skills for Statisticians II, Time Series & Empirical Design, Statistical Methods in Epidemiology.
TA: Probability Theory & Random Processes; Statistical Analysis.

2013-2017

Bachelor of Economics Science: Finance Elite Program.
Zhejiang University - Chukochen Honors College – Hangzhou, Zhejiang, China
GPA: 3.85/4.00. (Top 10% at College of Economics in Zhejiang University).
Awards: Excellent academic scholarship (2014). **Courses:** Computational Methods (92), Fundamental Java Programming (94), Probability and Mathematical Statistics (90), Calculus III (100), Econometrics Modelling (92), Macroeconomics (94), Intermediate Microeconomics (90).

2016

Exchange Student: Statistics.
Uppsala University – Uppsala, Uppsala, Sweden
(Master Level) Courses: Quantitative Method (VG out of F, G, VG), Financial Derivatives (Martingale Pricing Theory, VG)

PAPER WORK

2018. 11

3D Co-Varying Geometric Pattern Analysis on Epicardium and Endocardium of Left Ventricle: A Novel Geometric Marker Derived from MR Images. Han Bao, Hui Ren. Peer Reviewed Manuscripts.

2018. 10

3D Regional Shape Analysis of Left Ventricle Using MR Images: Abnormal Myocardium Detection and Classification. Han Bao, Hui Ren, Zhiling Zhou, Ning Guo, Quanzheng Li. Accepted, IEEE International Symposium on Biomedical Imaging (ISBI) 2019.

2018. 10

Novel Radiomic Features Based on Graph Theory for PET Imaging. Zhiling Zhou, Ning Guo, Jianan Cui1, Xiaxia Meng, Yiwei Hu, Han Bao, Quanzheng Li. Accepted by ISBI 2019.

RESEARCH EXPERIENCE

Machine Learning
2018.06 – *Present*

Visiting Graduate Student, at Department of Radiology in Massachusetts General Hospital and Harvard Medical School. (Supervisor: Quanzheng Li, Associate Professor at Harvard Medical School).

- Automatic lesion detection on multi-dimensional MR imaging, using multi-linear principle component analysis and graph signal processing methods.
- Left ventricle segmentation on MR imaging with 2D/3D Unet.
- Off-line domain adaptation between different image datasets with variation auto-encoder.
- Performed low-rank feature representation with RNN, graph convolutional network (ChebNet), and dynamic analysis on 3D cardiac skeleton, for dysfunctional pattern recognition in longitudinal data.
- Causality Inference on directed acyclic graph for cardiac remodeling analysis.

2018.07 - *Present*

Visiting Graduate Student, in McGovern Institute for Brain Research at MIT (Supervisor: Dimitrios Pantazis, Principal Research Scientist at McGovern Institute for Brain Research at MIT).

*At CMU Graduate School, A+ is recorded as 4.33, but A+ is not available in many courses.

- Constructed graph measurements for MEG time series data, with mutual information map, orthogonal correlation map, phase-locking value etc.
- Classification between mild cognitive impairment (MCI) patients and normal aging group, using graph signal processing, logistic regression on graph and common spatial pattern.
- Preparing an NIH proposal on multimodal MCI classification with deep learning methods.

2018.02- 2018.05 **Statistical Practice Project**, at Department of Stats & Data Science in Carnegie Mellon University (Advisor: Howard Seltman, Director of Master's Program in Statistical Practice Program in CMU).

- Estimate Harbor Constant by finding the most look-alike galaxies (sosies) in the whole universe.
- Built large-scale data matching algorithms in SQL. Clustered galaxies spectrum with density-based spatial clustering of applications with noise (DBSCAN).

Economics Research

2016.08 - 2016.10 **Independent Research** (Advisor: Xingguo Luo, College of Economics, Zhejiang University).

- Simulated local volatility surface for currency options using Heston equation and Monte Carlo.
- Built trading strategies and achieved 23% annual return rate.

2015.05 - 2016.05 **Undergraduate Thesis** (Advisor: Xiaolan Yang, College of Economics, Zhejiang University).

- Studied relationships between Chinese stock market and public emotion by using time-series models (gjr-Garch). Captured public emotion by mining and conducting natural language processing analysis on 5-year online forum data.

WORKING EXPERIENCE

2017.12 - 2018.01 **Intern Machine Learning Engineer**. VoxelCloud, Los Angeles.
Eye-related diseases classification; Pre-stage diabetes diagnosis on eye images with CNN related models. Diabetes lesion detection with Attention models.

2016.07 - 2016.09 **Intern Data Analyst**. Sanofi-Aventis Ltd, Shanghai.
Sales performance evaluation, strategy consulting, market volume prediction.

2016.04 - 2016.11 **Part-time Associate**. Nielsen Ltd (Consulting), Shanghai.
Assisted China's biggest telecommunication company with managing its sales department.

2015.07 - 2015.08 **Intern Consultant**. Deloitte Ltd (Consulting), Shanghai
Assisted one international pharma company's IT department with building new data-driven management system.

SOCIAL WORK AND AWARDS

- American Mathematical Contest in Modeling. Honorable Mention (Team leader). Apr 2016
- CIMA & Tsinghua Business Challenge Competition. 1/750 teams (Team leader). Dec 2015
- ICBC National Financial Innovation Competition. 1/128 in Zhejiang District. Aug 2014
- China High School Biology Olympiad (CBO). First Prize (4/2000) in Jiangsu District. June 2012.
- Vice minister of Student Union Secretary Office, Vice minister of Youth League Media Department at Chukochen College.

SKILLS

Python, Matlab, Pytorch, Tensorflow, Keras, R, Java, C++, SPSS, SAS, SQL, Japanese (5-year study).