

Yujin Han

✉ yujin.han@yale.edu

☎ +86-188-1137-8895

EDUCATION BACKGROUND

Yale University

MSc in Biostatistics, Biostatistics (Data Science Track)

Classification: Honor (above 90/100), Supervised by Leying Guan

New Haven, USA

Sep. 2021-Jun. 2023

Renmin University of China (RUC)

BS in Economics, Economic Statistics, School of Statistics

GPA: 3.74/4, Supervised by Maozai Tian

Beijing, China

Sep. 2016-Jun. 2020

University of California, Berkeley (UCB)

Summer School

GPA: 3.94/4

Berkeley, USA

Jun. 2018-Jul. 2018

RESEARCH EXPERIENCE

Yale University

Research Assistant to Prof. Leying Guan

New Haven, USA

Sep. 2021- Present

- Privacy protection in vertical federated learning (split learning). Proposed the Generative Adversarial Federated Model (GAFM) inspired by GAN. The algorithm is theoretically and experimentally proven to outperform both Vanilla SplitNN and Marvell models in both terms of performance and security. The paper is under review (ICLR2023).
- Covariate shift in conformal prediction. Proposed a semi-supervised ensemble approach that uses training and unlabeled test samples to construct a set-valued classifier robust to distributional changes. The method outperforms the existing five baseline models in terms of both Type I error and Type II error. The paper is in revision (ICML2023).
- Network modelling of topologically associating domains (TADs) using HI-C data. Designed the dynamic programming algorithm to optimize the process for solving the maximum likelihood function of the optimal number of TADs on chromosomes. The project is in experimentation.
- Advisor: Leying Guan

HUAWEI Noah's Ark Lab

Research Intern, Decision Making & Reasoning Team

Beijing, China

Jul. 2022- Sep. 2022

- The cascade algorithm is designed to address the problems of difficult training and poor generalization of multimodal fiber data. The fiber data consisting of features and phases are trained with a cascaded neural network after out of distribution (OOD) detection by Auto-Encoder. Experiments shown the algorithm is efficient in training and alleviates the generalization problem. The algorithm has been adopted by the fiber optic communication department.
- Advisors: Bingshuai Li, and Yunfeng Shao

Chinese Academy of Sciences

Research Assistant, Computational Cyber-Psychology Lab

Beijing, China

Mar. 2019- May 2021

- Collected the text data related to suicide possibility of Weibo (Chinese Twitter) users by crawler and predicted suicide probability by DNN and SVM.
- Applied panel regression and Structural Equation Modelling to study the macro factors in Chinese society that can influence suicidal possibility of Weibo users. Two SCI papers were published based on the above research.
- Advisor: Tingshao Zhu

PUBLICATIONS & PREPRINTS

Publications

- **Han, Yujin**, Yawei Zhang, and Sten H. Vermund. "Blockchain Technology for Electronic Health Records." *International Journal of Environmental Research and Public Health* 19.23 (2022): 15577. JCR Q1.
- Li H, **Han Y**, Xiao Y, et al. Suicidal ideation risk and socio-cultural factors in China: A longitudinal study on social media from 2010 to 2018[J]. *International Journal of Environmental Research and Public Health*, 2021, 18(3): 1098. JCR Q1.
- **Han Y**, Li H, Xiao Y, et al. Influential path of social risk factors toward suicidal behavior—evidence from Chinese sina weibo users 2013–2018[J]. *International Journal of Environmental Research and Public Health*, 2021, 18(5): 2604. JCR Q1.

Preprints

- **Yujin Han**, and Leying Guan (2022). Generative Adversarial Federated Model.
- Mingwenchan Xu*, **Yujin Han***, and Leying Guan (2022). Conformalized ensemble classifier under generalized label shift.
- **Yujin Han**, Pan Du, and Kai Yang. "FedGBF: An efficient vertical federated learning framework via gradient boosting and bagging." *arXiv preprint arXiv:2204.00976* (2022).

Patents

- **Han Yujin**, Li Yixin, Chen Xiaolin, et al. Clustering methods, devices, electronic devices and storage media. Application (Patent) No.:202110360295.
- Yang Kai, Wang Hu, **Han Yujin**, et al. Data sharing methods, the use of models for their application. Application (Patent) No. 202110324495.
- **Han Yujin**, Li Yixin, Chen Zhong, et al. A vertical federated learning modeling method, apparatus, device, and computer medium. Application (Patent) No. 202110417898.

INTERNSHIP

Jingdong Technology

Beijing, China

Algorithm Engineer Intern, Federated Learning Team

Aug. 2020-Feb. 2021

- Participated in federated modeling projects for Tencent and UnionPay; trained SecureBoost and FedLR (based on FATE), and evaluated the performance improvement.
- Proved the effectiveness and shortcomings of federated learning based on comparison between federated learning model of three participants and Xgboost; published the research report "How to play with multi-party federated learning?" on the official WeChat account of Jingdong.
- Co-authored the book "Big Data Risk Control Guide" and wrote two chapters (14.4 horizontal federated learning and 14.5 federated transfer learning); co-authored the book "Federal Learning and Technical Practice" and wrote the introductory part of 10+ pages; supported to revise the rest chapters.

DiDi

Bijing, China

Data Analyst Intern, Carpool Team

Sep. 2019 - Dec. 2019

- Collected and consolidated data of 250,000+ App users in DiDi database through SQL.
- Analyzed and visualized the data to explain the behaviors of users and drivers; concluded that the DiDi App should pop up an interface page at fixed time showing the remain waiting time to reduce order cancellation; this advice was accepted by the Product department to optimize the consumer service.

LEADERSHIP

Deep AI

Team Leader

Beijing, China

Jun. 2020 - Jul. 2020

- Participated in the competition of AI finance as the team leader; established an AI mutual fund investment platform.
- Visualized all funds and used Stacking to select funds with high predicted Sharpe Ratio; allocated selected funds based on Mutual Fund Theorem; won 4th prize and 4th most popular work in the competition.

Youth (Official Newspaper of RUC)

Minister, Department of Culture

Beijing, China

Sep. 2016 – May 2019

- Led a team of 20+ students, responsible for compiling the monthly campus newspaper and weekly updated the official WeChat account of Youth.
- Took charge of topic selection and acritical writing for Youth.

Kendo Club of RUC

Deputy Team Leader

Beijing, China

Sep. 2016 – Sep. 2019

- Arranged weekly Kendo training sessions for all the club members.
- Attended kendo contest “WeiMing” cup Kendo competition of Chinese College Students.

AWARDS & ACHIEVEMENTS

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| • Jingdong Study Scholarship, RUC | <i>2016/2018</i> |
| • First prize, CUMCM | <i>2018</i> |
| • Merit Student, RUC | <i>2017</i> |
| • Outstanding Social Community Volunteer, RUC | <i>2017/2018</i> |
| • Annual speech contest champion, RUC | <i>2018</i> |

ACADEMIC SERVICE & TEACHING

- Conference Reviews: AISTATS2023
- Teaching Experience: BIS 620 Data Science Software Systems (Fall 2022, Yale)