Weixi Gu

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EDUCATION

- **University of California, Berkeley.** California, USA
  Postdoc at EECS. Advisor: Prof. Costas J. Spanos and Khalid Mosalam *Jul. 2018 – Jul. 2019*

- **Tsinghua University** Beijing, P.R.China
  Phd Candidate at Tsinghua-Berkeley Shenzhen Institute (TBSI). Advisor: Prof. Lin Zhang *Sep. 2015 – Jul. 2018*

- **Tsinghua University** Beijing, P.R.China
  Master at School of Software. Advisor: Prof. Yunhao Liu *Sep. 2012 – Jul. 2015*

- **Shanghai Jiaotong University** Shanghai, P.R.China
  Bachelor at School of Information Security *Aug. 2008 – Jul. 2012*

RESEARCH INTEREST

- **Mobile Computing**: Designing and building computational systems and frameworks for large-scale mobile data analytics, including human health/safety sensing and spatial-temporal data mining.
- **Industrial Internet of Things, IIoT**: Designing and developing the architecture of IIoT, including several national core projects and regional core projects

WORKING EXPERIENCE

- **China Academy of Industrial Internet** Artificial Intelligent Team Leader
  Department of the Intelligent Industry *Aug. 2019 - Present*
  - **Research on the Industrial Internet of Things** : Industrial Internet of Things, Artificial Intelligent

- **Tsinghua University** Advisor
  Shenzhen International Graduate School *May 2022 - Present*

- **Microsoft Research Asia** Research Intern
  Wireless and Networking Group *Oct. 2014 - Mar. 2015*
  - **Individual Behavior Learning**: Designed and implemented an adaptive mobile computational platform for individual behavior learning.

- **Microsoft Research Asia** Research Intern
  Big Data Mining Group *Jul. 2013 - Aug. 2014*
  - **Co-reference Resolution**: Designed Co-reference resolution algorithm for Wikipedia database. Ameliorated softmax model to improve the accuracy of the Co-reference algorithms
  - **Deep Reading Robot**: Setup a deep reading robot to extract commonsense and understand knowledge on web-scale articles automatically.

- **Baidu Inc.** Research Intern
  Page Search Group *Jun. 2012 - Aug. 2012*
  - **Web Search and Online Advertising**: The inherent structure mining about user online searching behaviors.

- **Ebay Inc.** Research Intern
  User Recommendation Group *Apr. 2012 - Jun. 2012*
  - **Group Recommendation**: Optimized the dynamic group recommendation algorithm by Pareto Improvement.

Award (Selected)

- 2022, Top 10 Industrial Internet Innovative People   http://www.cww.net.cn/article?id=573073

- 2018, Outstanding Ph.D Graduate Student of Beijing.   Top 1% in Beijing.

- 2018, Best Paper Award, Mobiquitous.   Top 1% in accepted papers.

- 2017, National Graduate Scholarship.   Top 1% in TBSI, Tsinghua University.

- 2016, National Graduate Scholarship.   Top 1% in TBSI, Tsinghua University.

- 2016, Best Paper Runner-Up Award, Mobiquitous.   Top 2% in accepted papers.

- 2016, TBSI Outstanding Scholarship.   Top 1% in TBSI, Tsinghua University.

- 2015, Excellent Master Dissertation, Tsinghua University.   Top 1% in School of Software, Tsinghua University.

- 2015, Tomorrow Star of Microsoft Research Asia.   Top 3% in Microsoft Research Asia Internship Program.

- 2014, National Graduate Scholarship.   Top 1% in School of Software, Tsinghua University.

- 2014, Best Paper Award, IEEE Trustcom.   Top 1% in accepted papers.

Publication (Selected) * denote the corresponding author

- **Journal**:
  1.TriChronoNet: Advancing electricity price prediction with Multi-module fusion.
  Applied Energy .
  He, Miao, Weiwei Jiang, and **Weixi Gu***

  2. ML-based pre-deployment SDN performance prediction with neural network boosting regression.
  Expert Systems with Applications.
  Jiang, Weiwei, Haoyu Han, Miao He, and **Weixi Gu***

  3. When game theory meets satellite communication networks: A survey.
  Computer Communications
  Weiwei Jiang, Haoyu Han, Miao He, **Weixi Gu***

  4. Graph Neural Network for Traffic Forecasting: The Research Progress.
  ISPRS International Journal of Geo-Information
  Jiang Weiwei, Jiayun Luo,   **Weixi Gu***

  5. Internet Traffic Prediction with Distributed Multi-Agent Learning.
  Applied System Innovation
  Jiang Weiwei,   **Weixi Gu***

  6. Spatial-temporal graph neural network traffic prediction based load balancing with reinforcement learning in cellular networks.
  Information Fusion 2024
  Liu, Shang, Miao He, Zhiqiang Wu, Peng Lu, and **Weixi Gu***

  7.Discrimination and quantification of scar tissue by Mueller matrix imaging with machine learning.
  Journal of Innovative Optical Health Sciences
  Liu Xi, Yanan Sun, **Weixi Gu**, Jianguo Sun, Yi Wang, and Li Li

  8. Research on the Integration of Wireless Sensor Networks Based on IoT Technology.
  Journal of Physics
  Wenying Qiu, Sijia He, **Weixi Gu***

  9. User Mapping Strategy in Multi-CDN Streaming: A Data-driven Approach
  IEEE Internet of Things Journal
  Guowei Zhu, **Weixi Gu***

  10. CausalBG: Causal Recurrent Neural Network for the Blood Glucose Inference with IoT Platform.
  IEEE Internet of Things Journal
  Miao He, **Weixi Gu***, Y Kong, L Zhang, CJ Spanos, KM Mosalam

  11 Mining regional mobility patterns for urban dynamic analytics.

Mobile Networks and Applications 2019
Jing Lian, Yang Li, **Weixi Gu**, Shao-Lun Huang, Lin Zhang

12. SugarMate: Non-intrusive Blood Glucose Monitoring with Smartphones.
Proceedings of the ACM on Interactive, Mobile, Wearable and Ubiquitous Technologies 1.3 (2017)
Weixi Gu, Yuxun Zhou, Zimu Zhou, Xi Liu, Han Zou, Pei Zhang, Costas J. Spanos, and Lin Zhang.

13. Measuring fine-grained metro interchange time via smartphones.
Transportation Research Part C: Emerging Technologies 81 (2017)
Weixi Gu, Kai Zhang, Zimu Zhou, Ming Jin, Yuxun Zhou, Xi Liu, Costas J. Spanos, Zuo-Jun Max Shen, Wei-Hua Lin, and Lin Zhang.

14. Sleep hunter: Towards fine grained sleep stage tracking with smartphones. IEEE Transactions on Mobile Computing 15, no. 6 (2016)
Weixi Gu,Longfei Shangguan, Zheng Yang, and Yunhao Liu.

15. Sherlock: Micro-environment sensing for smartphones IEEE Transactions on Mobile Computing 15, no. 6 (2016)
Yang, Zheng, Longfei Shangguan, **Weixi Gu**, Zimu Zhou, Chenshu Wu, and Yunhao Liu.

- **Conference**:
  1. Decomposed Human Motion Prior for Video Pose Estimation via Adversarial Training
  Future of Information and Communication Conference
  Wenshuo Chen, Xiang Zhou, Zhengdi Yu, **Weixi Gu**, Kai Zhang

  2.RLTrace: Synthesizing High-Quality System Call Traces for OS Fuzz Testing.
  International Conference on Information Security
  Chen, Wei, Huaijin Wang, **Weixi Gu***, and Shuai Wang

  3.Diffuflow: Robust fine-grained urban flow inference with denoising diffusion model.
  In Proceedings of the 32nd ACM International Conference on Information and Knowledge Management
  Zheng, Yuhao, Lian Zhong, Senzhang Wang, Yu Yang, **Weixi Gu**, Junbo Zhang, and Jianxin Wang

  4. Machine Learning-based Multi-Class Traffic Management for Smart Grid Communication Network.
  In Adjunct Proceedings of the 2023 ACM International Joint Conference on Pervasive and Ubiquitous Computing & the 2023 ACM International Symposium on Wearable Computing
  Jiang, Weiwei, Haoyu Han, Miao He, and **Weixi Gu***

  5. Satellite internet of things for smart agriculture applications: A case study of computer vision.
  In 2023 20th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)
  Liu, Jiahua, Weiwei Jiang, Haoyu Han, Miao He, and **Weixi Gu***.

  6.Drought Level Prediction Based on Meteorological Data and Deep Learning.
  2023 20th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)
  Jiahua Liu, Weiwei Jiang, Haoyu Han, Miao He, **Weixi Gu***.

  7.Making Wines Smarter: Evidence from an Interpretable Learning Paradigm.
  2023 20th Annual IEEE International Conference on Sensing, Communication, and Networking (SECON)
  Miao He, Weiwei Jiang, **Weixi Gu***

  8. Research on Algorithm of big data sensor anomaly diagnosis
  2022 World Automation Congress (WAC)
  Wenying Qiu, **Weixi Gu***
  9.Research and analysis of sensor synergy based on Artificial Intelligence
  2022 World Automation Congress (WAC)
  Wenying Qiu, **Weixi Gu***
  10. BikeMate: Bike Riding Behavior Monitoring with Smartphones. In MobiQuitous, 2017.
  Weixi Gu, Zimu Zhou, Yuxun Zhou, Han Zou, Yunxin Liu, Costas J. Spanos and Lin Zhang.

  11. MetroEye: Smart Tracking Your Metro Trips Underground. In MobiQuitous, 2016. **Best Paper Runner-up**
  Weixi Gu, Ming Jin, Zimu Zhou, Costas J. Spanos, and Lin Zhang.

  12. Intelligent sleep stage mining service with smartphones.   In Ubicomp, 2014
  Weixi Gu, Zheng Yang, Longfei Shangguan, Wei Sun, Kun Jin, and Yunhao Liu.

  13.Toauth: Towards automatic near field authentication for smartphones. In Trust, Security and Privacy in Computing and Communications (TrustCom), 2014. **Best Paper Award**
  Weixi Gu, Zheng Yang, Longfei Shangguan, Xiaoyu Ji, and Yiyang Zhao.

  14.Non-parametric outliers detection in multiple time series. A case study: Power grid data analysis. In AAAI, 2018
  Yuxun Zhou, Arghandeh Reza, Han Zou, and **Weixi Gu**.

15. WiFi-based human identication via convex tensor shapelet learning. In AAAI, 2018
Han Zou, Yuxun Zhou, Jianfei Yang, **Weixi Gu**, Lihua Xie, and Spanos Costas.

- **Preprint, Poster and PhD Forum Abstracts**:
1.An Empirical Study on Large Language Models in Accuracy and Robustness under Chinese Industrial Scenarios
arXiv preprint arXiv
Li, Zongjie, Wenying Qiu, Pingchuan Ma, Yichen Li, You Li, Sijia He, Baozheng Jiang, Shuai Wang, and **Weixi Gu***

2. Representation Learning from Multimodal Sensor Data with Maximally Correlated Autoencoders
2022 21st ACM/IEEE International Conference on Information Processing in Sensor Networks (IPSN)
Fei Ma, **Weixi Gu**, Shiguang Ni, Lin Zhang
3. An incentive mechanism design for resource collection in crowdsourced CDN.
In SenSys 2020.
Ge Ma, Rongsheng Xue, **Weixi Gu***

4. Non-intrusive blood glucose monitor by multi-task deep learning: PhD forum abstract.
In IPSN, ACM, 2017.
Weixi Gu

5. Group recommendation: by mining users' check-in behaviors.
In Ubicomp, 2017.
Miao He, **Weixi Gu**, and Ying Kong.

6. BikeSafe: bicycle behavior monitoring via smartphones.
In Ubicomp, 2017.
Weixi Gu, Yunxin Liu, Yuxun Zhou, Zimu Zhou, Costas J. Spanos, and Lin Zhang.

7. MetroEye: towards fine-grained passenger tracking underground.
In Ubicomp, 2016.
Weixi Gu, Ming Jin, Zimu Zhou, Costas J. Spanos, and Lin Zhang.

- **Books**:
1. White Book: the Economic Development of China's Industrial Internet of Things (2020).
2. White Book: the Economic Development of China's Industrial Internet of Things (2021).
3. White Book: the Economic Development of China's Industrial Internet of Things (2022).
4. Artificial Intelligent: Information Technology Frontier Series.

INVITED ACADEMIC TALKS

1. Adaptive Temporal Feature Selection and Online Learning By Causality.
University of California, Berkeley. Oct. 2017
2. Modelling Inherent Data Structure of Blood Glucose Dynamics.
Department of Electrical and Computer Engineering, Stony Brook University. May 2017
3. SugarMate: Non-intrusive Blood Glucose Monitoring with Smartphones.
ECE departments, Carnegie Mellon University, Aug. 2017

HOSTED NATIONAL PROJECTS (SELECTED)

1. Towards the Cloud-edge Artificial Intelligent Open Computing Resource System
The Overall Project Manager; The Overall Funding: RMB 59,000,000
2. The Human-Computing Interactive (HCI) System based Industrial IoT Platform
The Project Manager; The Overall Funding: RMB 100,000,000
3. The Developing Tool for Data and Models based on Industrial Internet Platform
The Project Manager; The Overall Funding: RMB 100,000,000
4. The Intelligent Knowledge Graph based on Industrial Internet Platform
The Project Manager; The Overall Funding: RMB 163,800,000
5. Industrial Mechanism Model Library for the Aerospace Industry
The Project Manager; The Overall Funding: RMB 100,000,000
6. Towards the Fundamental Parts and Services on Industrial Internet Platform.
The Project Manager; The Overall Funding: RMB 100,000,000
7. Open Source Development and Detection on AI Operation System.
The Project Manager; The Overall Funding: RMB 100,000,000

8. Industrial Intelligent and Optimization System.

The and Project Manager; The Overall Funding: RMB 100,000,000