

Zekai Chen, Ph.D.

CONTACT INFORMATION

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RESEARCH INTERESTS

I am a Ph.D. student in Computer Science at George Washington University. My general research interests include Machine Intelligence and Data Mining. I mainly focus on interesting problems such as multi-task machine learning, sequence modeling, efficient deep learning, graph learning in IoT and anomaly detection. My research experience includes multi-task time series forecasting, sequence modeling acceleration in attention, graph structure learning for anomaly detection, and general data mining.

EDUCATION

George Washington University, Computer Science Department, Washington, D.C., USA

Ph.D. Computer Science, 08/2019

- Advisers: Professor Xiuzheng(Susan) Cheng
- Areas of Research: Machine Intelligence and Cognition, Deep Learning, Multi-task Learning, Sequence Modeling, Graph Learning, Human Activity Recognition

George Washington University, Department of Statistics, Washington, D.C., USA

M.S. Statistics, 08/2016 to 12/2017

- Advisers: Professor Reza Moderres and Professor Judy Wang
- Areas of Study: Statistical Learning, Machine Learning, Data Mining, Deep Learning, High-dimensional Inference
- Selected Coursework: Machine Learning (Teaching Asst.), Mathematical Statistics, Linear Regression, Data Mining, Nonparametric/Graph Regression, Statistical Computing

Shanghai University, Department of Mathematics, Shanghai, China

B.S. Applied Mathematics, 08/2012 to 07/2016

- Advisers: Professor Qingwen Wang
- Topics: Linear Algebra, Matrix Factorization

PROFESSIONAL EXPERIENCE

Lu Lab (Systematical Neuroscience), Washington, D.C., USA

Research Associate

03/2018 to 08/2019

- Hosts: Dr. Hui Lu, Dr. Yuanlei Yue, Dr. Pan Xu and Jet Su at Lu Lab.
- I worked on calcium imaging video analysis ranging from source signal extraction to neural activity analysis. I developed behavior auto-detection tool for rodent animals and also pipeline to process machine learning analysis for cell type definition and circuit function coding of brains. CNN, LSTM, Variational Auto-Encoder are most involved models.

IBM, GCC, Shanghai, China

Information Analyst Intern

06/2015 to 06/2016

- Use BI tools such as Cognos and QMF to acquire data from corresponding database, providing foundations for business analysis.
- Explore the possible data metrics that have values to the business, to better describe facts and changes, progress and trends, identify challenges and opportunities, and uncover particular business rules and principles.
- Leverage analytical skill and critical thinking capabilities to help the functional teams and business owners develop business strategies, improve decision making, adjust business operation and enhance overall business outcomes.
- Form up regular communications and maintain relationships with the business focus from worldwide to increase mutual understanding, provide timely supports on problem solving, information query, etc.

SELECTED PUBLICATIONS

Chen, Z., Yang, H., Xiong H., and Zhang, X., *Semi-Supervised Online Learning for Personalized Federated Human Activity Recognition*, ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2021 (under review, top conference in data mining, h5-index: 90, IF: 3.875)

Zhang, X., **Chen, Z.** (equal contribution), Zhuang, F., Li, W., Li, Y., Xiong, H., and Cheng, X., *Learning Sharing Schemes: Multi-Task Multi-Step Time Series Forecasting with Variational Auto encoders*, ACM SIGKDD Conference on Knowledge Discovery and Data Mining, 2021 (under review, top conference in data mining, h5-index: 90, IF: 3.875)

Chen, Z., Shi, M., and Zhang, X., *ASM2TV: An Adaptive Semi-Supervised Multi-Task Multi-View Learning Framework*, IJCAI International Joint Conference on Artificial Intelligence, 2021 (final notification, top conference in AI, h5-index: 95, IF: 2.79)

Chen, Z., Chen, Z., Zhang, X., Pei, J., Pless, R., and Cheng, X., *DCAP: Deep Cross Attentional Product Network for User Response Prediction*, IEEE Transactions on Knowledge and Data Engineering (TKDE), 2021 (major revision, top journal in data mining, h5-index:81, IF: 7.628)

Chen, Z., Chen, D., Cheng, X., and Zhang, X., *Learning Graph Structures with Transformer for Multivariate Time Series Anomaly Detection in IoT*, IEEE Internet of Things Journal (IoTJ), 2021 (Accepted, top journal in IoT, IF: 11.75, H-index: 47)

Chen, Z., E, J., Zhang, X., Sheng, H., and Cheng, X., *Multi-Task Time Series Forecasting With Shared Attention*, International Conference on Data Mining Data Transfer Learning (ICDM), page: 917-925, 2020 (Top conference in Data Mining, h5-index: 48, IF: 2.32)

Yue, Y., Xu, P., Liu, Z., **Chen, Z.**, (equal contribution) etc., *MeCP2 deletion impaired layer 2/3-dominant dynamic reorganization of cortical circuit during motor skill learning*, Europe PMC, 2019 (IF: 2.478, citation: 1)

Chen, Z., Zhu, S., and Djavanshir, R., *Predicting Brand Advertisement Consumption on Facebook by Model Comparison*, Journal of Global Business Management (JGBM), Volume 13, No. 2, October 2017 issue (IF: 0.781)

AWARDS AND GRANTS

- Computer Science, Graduate Merit Awards, George Washington University, 2019
- Meritorious Winner of The Mathematical Contest in Modeling, US, 2014
- Scholarship for Academic Innovation, Shanghai University, 2014
- Honorable Winner of The Mathematical Contest in Modeling, US, 2013

PROGRAMMING LANGUAGES

Over 100k lines: Python, MATLAB, MySQL, Bash, L^AT_EX
Over 50k lines: C, C++, Go, Java, Javascript, PHP

REFERENCES

Prof. Xiuzheng(Susan) Cheng, Professor, George Washington University, cheng@gwu.edu