Zekai Chen, Ph.D.

CONTACT INFORMATION

Zekai(Zach) Chen
E-mail: zech_chan@gwu.edu
Mobile: (202)290-6840
WWW: zekaichen.github.io

SUMMARY

I am a Ph.D. student in Computer Science at George Washington University. My general research interests include *Machine Learning* and *Data Mining*. I mainly focus on interesting problems such as multi-task machine learning, sequence modeling, efficient Transformer (attention mechanism), graph learning, and anomaly detection. I'm actively seeking machine learning-related opportunities in the industry that will use my research, machine learning, and data mining skills. Thanks for your time and consideration.

EDUCATION

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

Ph.D. Computer Science, expected graduation 05/2021

- Thesis: Learning sharing schemes among tasks for temporal data modeling

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

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

- 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

- Graduated with Outstanding College Student of Shanghai city

SKILLS

Over 100k lines: Python
Over 50k lines: C, C++, Bash, SQL, Go, Java, Javascript, PHP, MATLAB, LaTeX
Deep Learning Frameworks: Pytorch, Tensorflow, MXNet
Large-scale Machine Learning: AWS, SageMaker, Azure, Hadoop, Spark, Hive
Proficient Models: Transformer, LSTM, Xgboost, Random Forest, LightGBM, etc

WORK EXPERIENCE

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

Research Associate **03/2018 to 08/2019**

- Worked on calcium imaging video analysis ranging from source signal extraction (object detection) to neural activity (*temporal data*) analysis.
- Built rodent animals' behavior auto-detection pipeline to process machine learning analysis for cell type definition and circuit function coding for understanding brain intelligence.
- Preprocessed large-scale *Terabytes*-level neural firing imaging videos and applied *ResNet*, *LSTM*, and *Variational Auto-Encoder* (VAE) in parallel on downsampling the video size and further reduce the dimensionality of comprehensive patterns to assist brain signals understanding.

IBM, GCC, Shanghai, China

Information Analyst Intern **06/2015 to 06/2016**

- Used BI tools (SQL) such as Cognos and QMF to acquire data from the corresponding database, providing foundations for business analysis.
- Leverage analytical skill and critical thinking capabilities to help the functional teams and business owners develop business strategies, improve decision making, adjust the business operation and enhance overall business outcomes.
- Form up regular communications and maintain relationships with the business focus worldwide to increase mutual understanding and provide timely support on problem-solving, information query, etc.

Research Works and Publications

[1] **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 (KDD), 2021 (under review)

[2] 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 (KDD), 2021 (under review)

[3] **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 (IJCAI), 2021 (final notification, coming soon)

[4] **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, coming soon)

[5] **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)

[6] **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 Knowledge Transfer Learning (ICDM), page: 917-925, 2020

[7] 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)

[8] **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