Dong Wang

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Experience

Elevance Health **2024–Present**
Principal Machine Learning Scientist *Palo Alto, CA*

Elevance Health **2021–2024**
Senior Machine Learning Scientist *Palo Alto, CA*

Duke University **2017–2021**
Associate Researcher *Durham, NC*

Education

Tsinghua University **2012–2017**
Ph.D., Computer Science *Beijing, China*

China University of Mining and Technology **2008–2012**
B.E., Computer Science, GPA 3.87/4.0, Rank:1/76 *Xuzhou, China*

Highlights

- Successfully completed an LLM-powered customer service support project as a tech lead in Elevance Health, which reduced the average answering time from 2 minutes to 20 seconds.
- 12 years of experience in deep learning and machine learning.
- 8 papers in top-tier machine learning conferences and 1800+ Google citations.

Experience

Elevance Health **Palo Alto, CA**
Principal Machine Learning scientist *2024.4–Present*
- LLM-powered Chatbot building for knowledge management, especially LLM fine-tuning and in-context learning.

Senior Machine Learning scientist *2021.7–2024.3*
Introduced state-of-the-art deep learning methods to learn from electronic health records with the goal of enabling the personalization of treatment recommendations for complex chronic conditions on a large scale.
- synthetic healthcare data generation based on the GAN model
- chronic disease prediction;
- drug treatment effect estimation.

Information Initiative at Duke University (iiD) **Durham, NC**
Associate Researcher, with Prof. Lawrence Carin. *2017.9–2021.6*
- Generative neural network optimization and representation learning.
- Disease prediction based on medical images and scans.

Microsoft Research Asian **Beijing**
Visiting Scholar, with Prof. Yu Zheng *2017.6–2017.9*
- DeepTTE: Travel time estimation for given path. Proposed a Geo-Conv layer to represent time series data in geographical space in deep learning based prediction model.

Research Lab at Didi Chuxing **Beijing**
Algorithm Design Intern, with Prof. Jieping Ye *2016.9–2017.1*

- Supply-demand prediction of online car-hailing. Designed a deep learning based prediction model for extremely skewed data prediction; extracted useful features; dealt large-scale data with Spark platform

IIIS at Tsinghua University **Beijing**
Research Assistant, with Prof. Jian Li *2012.8–2017.7*

- Learning and prediction over massive spatio-temporal traffic data.
- Automatic User Identiffication across Heterogeneous Data Sources.
- ETCPS: An Effective and Scalable Traffic Condition Prediction System.
- DESTPRE: A Data-Driven Approach to Destination Prediction.

Awards and Fellowships

Academic

- NeurIPS top reviewer award (2019), ICML top reviewer award (2020), PC member of IJCAI (2022)

Competitions

- No.3 among 1956 teams, DataCastle 2017, Travel Time Estimation Competition
- No.2 among 1648 teams, Di-tech Algorithm Competition, 2016, Supply-demand Prediction Competition for Online Car-hailing Service The Most Potential Prize, Di-tech Algorithm Competition

Scholarship

- The second prize scholarship and social work scholarship, Tsinghua University, 2012-2015
- The first prize scholarship, China University of Mining and Technology, three times, 2009 - 2012

Professional Activities

Conference Reviewer/PCMember:

- ICML 2020, ICML 2021, ICML 2022
- NeurIPS 2019, NeurIPS 2020, NeurIPS 2021
- ICLR 2023, ICLR 2024

Journal Reviewer:

- Transactions on Intelligent Systems and Technology 2018 -2020
- Transactions on Knowledge and Data Engineering 2018-2020
- International Journal of Transportation Science and Technology 2021

Software Skills

Python (10+ years), PyTorch (6+ years), TensorFlow (>3 years), Jave, C++

Publications

Google Scholar citation 1780.

- Tight mutual information estimation with contrastive fenchel-legendre optimization. Qing Guo, Junya Chen, **Dong Wang**, Yuewei Yang, Xinwei Deng, Jing Huang, Larry Carin, Fan Li, Chenyang Tao. Advances in Neural Information Processing Systems (NeurIPS) 2022.
- Gradient Importance Learning for Incomplete Observations. Qitong Gao, **Dong Wang**, ..., Lawrence Carin, Miroslav Pajic. The International Conference on Learning Representations (ICLR) 2022.
- Learning to Weight Filter Groups for Robust Classification. Siyang Yuan, Yitong Li, **Dong Wang**, Ke Bai, Lawrence Carin, David Carlson. Proceedings of the IEEE/CVF Winter Conference on Applications of Computer Vision (WACV) 2022.
- Wasserstein Contrastive Representation Distillation. Liqun Chen*, **Dong Wang***, Ricardo Henao,

Lawrence Carin. Conference on Computer Vision and Pattern Recognition (CVPR) 2021.

- On Fenchel Mini-Max Learning. Chengyang Tao, Liqun Chen, Shuyang Dai, **Dong Wang**, Lawrence Carin. Neural Information Processing Systems (NeurIPS) 2019.
- BRITS: Bidirectional Recurrent Imputation for Time Series, Wei Cao, **Dong Wang**, Jian Li, Hao Zhou, Lei Li, Yitan Li. Neural Information Processing Systems (NeurIPS) 2018.
- LMVP: Video Predictor with Leaked Motion Information, **Dong Wang**, Yitong Li, Qi Wei, Wei Cao, Liqun Chen. Neural Information Processing Systems (NeurIPS) 2018 (Workshop).
- When Will You Arrive? Estimating Travel Time Based on Recurrent Neural Networks, **Dong Wang**, Junbo Zhang, Wei Cao, Jian Li, Yu Zheng. In Association for the Advancement of Artificial Intelligence (AAAI) 2018.
- DeepSD: Supply-Demand Prediction for Online Car-hailing Services using Deep Neural Networks, **Dong Wang**, Wei Cao, Jian Li, Jieping Ye. In International Conference on Data Engineering (ICDE) 2017. (Oral)
- Forecasting Delivery Amount with Attention based Model, **Dong Wang**, Yaowu Zhang, Benyu Wang, Jing Jin, Jian Li. The Institute for Operations Research and the Management Sciences (INFORMS) 2017 (Poster).
- ETCPS: An Effective and Scalable Traffic Condition Prediction System, **Dong Wang**, Wei Cao, Mengwen Xu, Jian Li. In Database Systems for Advanced Applications (DASFAA) 2016. (Oral)
- Automatic User Identiffication across Heterogeneous Data Sources, Wei Cao Zhengwei Wu, **Dong Wang**, Jian Li, Haishan Wu. In International Conference on Data Engineering (ICDE) 2016. (Oral)
- DESTPRE: A Data-Driven Approach to Destination Prediction, Mengwen Xu, **Dong Wang**, Jian Li. In ACM International Joint Conference on Pervasive and Ubiquitous Computing (UbiComp) 2016.
- Learning and Prediction over Massive Spatio-temporal Traffic Data. (Ph.D. thesis)

Medical Journal and Patent

- Systems and Methods Related to Age-Related Macular Degeneration. Eleonora Lad, Lawrence Carin, Ricardo Henao Giraldo, Cynthia Toth, Dong Wang. (US Patennt)
- Analyzing the Retinal and Choroidal Vasculature and Sruecture in Cognitively Healthy Indivisuals at Higher Genetic Risk for Alzheimer's Disease using a Convolutional Neural Network, Cason B. Robbins, Dilraj S. Grewal, **Dong Wang**, ... Eleonora Lad, Heather Whitson, Lawrence Carin, Sharon Fekrat, (ARVO) 2021. (Abstract, Presentation)
- A Convolutional Neural Network to Identify Symptomatic Alzheimer's Disease using Multimodal Retinal Imaging, C. Ellis Wisely, **Dong Wang**, Sharon Fekrat, Ricardo Henao, Lawrence Carin. British Journal of Ophthalmology (BJO) 2020.
- Deep Learning Algorithm for Diagnosis of Alzheimer's Disease using Multimodal Retinal Imaging, C. Ellis Wisely, **Dong Wang**, Sharon Fekrat, Ricardo Henao, Lawrence Carin. Investigative Ophthalmology & Visual Science (ARVO) 2019 (Abstract)

Manuscript:

- A Deep Learning Algorithm to Predict Short-term progression to Geographic Atrophy on SD-OCT, Eleonora M. Lad, Cynthia A. Toth, **Dong Wang**, Ricardo Henao, Lawrence Carin.
- Proactive Pseudo-Intervention: Pre-informed Contrastive Learning For Interpretable Vision Models, **Dong Wang**, Yuewei Yang, Chenyang Tao, Ricardo Henao, Lawrence Carin.
- Conditional Video Generation with Leaked future guider Information, **Dong Wang**, Yitong Li, Liqun Chen, Ricardo Henao, Lawrence Carin.
- Towards Robust and Efficient Contrastive Textual Representation Learning, Liqun Chen, **Dong**

Wang, Ricardo Henao, Lawrence Carin.

- Syntax-Infused Transformer and BERT models for Machine Translation and Natural Language Understanding. Dhanasekar Sundararaman, Vivek Subramanian, **Dong Wang**, Lawrence Carin.