

HAOZHU WANG

1126 McIntyre St, Ann Arbor, MI

☎:617-380-9471 ✉:hzwang@umich.edu 🏠:www.haozhu-wang.com

EDUCATION

University of Michigan

Ann Arbor, MI

2016 - Dec. 2021 (Expected)

- Ph.D. in Electrical and Computer Engineering. GPA: 3.94/4.00.

Tianjin University

Tianjin, China

2015

- B.Eng. in Electrical Engineering. GPA: 3.80/4.00.

SKILLS

Programming Languages: Python, C++, Java, MATLAB, Julia, R

Frameworks & Others: PyTorch, TensorFlow, Keras, Linux, Bash, SQL, Google Cloud Platform

INDUSTRY & RESEARCH EXPERIENCE

Reinforcement Learning for Automatic Optical Design

University of Michigan & Inlight Technology

Jan 2020 - Now

- Developed customized sequence generation model based on GRU for generating multi-layer optical designs.
- Trained sequence generation models with PPO algorithm for automatically designing multi-layer optical thin films with target spectrum.
- Designed multiple multi-layer optical thin films with the developed algorithms for real-life applications.

Patient Risk Stratification with Individual Treatment Effect

University of Michigan

Sep 2018 - Jan 2020

- Proposed a patient risk stratification method based on estimating individual treatment effect under resource constraint settings.
- Developed method outperforms conventional patient risk stratification methods on a real EHR dataset collected at University of Michigan.

Treatment Planning for Occupational Injury

University of Michigan

Jan 2018 - Dec 2020

- Cleaned and analyzed an insurance claim dataset with 1.25 million patient records.
- Trained deep learning models for predicting return to work.
- Learned treatment policies with Q-learning from observational data.
- Evaluated the learned policies with weighted importance sampling.

Spatial and Temporal Invariance of Player Tracking Data

University of Michigan

Aug 2018 - Jan 2019

- Implemented convolutional neural networks, long short-term memory networks, and feedforward networks for predicting scores using player tracking data.
- Demonstrated a spatial invariance flipping the court does not affect the prediction accuracy.
- Demonstrated a temporal invariance that leveraging data longer than 0.5 second does not prediction accuracy.

Deep Neural Network Compression

University of Michigan

Aug 2017 - Jan 2018

- Implemented ordered weighted ℓ_1 (OWL) and group OWL (GrOWL) regularized deep neural networks in Tensorflow.
- Investigated sparsity inducing and correlation discovering properties of GrOWL for both convolutional layers and fully connected layers of deep neural network.
- Successfully compressed LeNet-5 and VGG-16 for more than 10 times. Paper published in ICLR 2018.

PUBLICATIONS

Machine Learning Publications:

Haozhu Wang, Zeyu Zheng, Chengang Ji, L. Jay Guo. Automated Design of Optical Multi-Layer Films with Deep Reinforcement Learning. *Reinforcement Learning for Real Life*, 2020.

Jiaxuan Wang, **Haozhu Wang**, Fahad Kamran, Jenna Wiens. Exploiting Spatial and Temporal Invariances when Mining Player Tracking Data in Basketball. (Under review)

Haozhu Wang, Jeeheh Oh, Eric Horvitz, Jenna Wiens. Targeting Interventions: Improving Estimates for Individual Treatment Effects by Explicitly Modeling Intermediate Events. (Under review)

Erkin Otles, **Haozhu Wang**, Suyanpeng Zhang, Brian Denton, Jon Seymour, Jenna Wiens. Return to Work After Injury: A Sequential Prediction & Prescription Problem. *Machine Learning for Healthcare (Clinical Abstract)*, 2019.

(Co-first author) Dejiao Zhang*, **Haozhu Wang***, Mario A.T.Figueiredo, Laura Balzano. Learning to Share: Simultaneous Parameter Tying and Sparsification in Deep Learning, *International Conference on Learning Representations (ICLR)*, 2018.

Jiaxuan Wang, Jeeheh Oh, **Haozhu Wang**, Jenna Wiens. Learning Credible Models. *Proceedings of the 24th ACM SIGKDD International Conference on Knowledge Discovery and Data Mining. ACM*, 2018.

Optics Publications:

Zhao, Qing-Yuan, Di Zhu, Niccolò Calandri, Andrew E. Dane, Adam N. McCaughan, Francesco Bellei, **Hao-Zhu Wang**, Daniel F. Santavica, and Karl K. Berggren. “Single-photon Imager Based on a Superconducting Nanowire Delay Line.” *Nature Photonics* 11, no. 4 (2017): 247-251.

Wenqi Zhu, Ting Xu, **Haozhu Wang**, Cheng Zhang, Agrawal Amit, Deotare Parag, Henri Lezec. “Surface-Plasmon-Polariton Laser based on a Metallic Trench Fabry-Perot Resonator”, *Science Advances* (2017).

Wang Haozhu, Yang Fenghe, Yang Fan, Nie Meitong, Yang Jianjun. Investigation of Femtosecond-Laser Induced Periodic Surface Structure on Molybdenum. *Chinese Journal of Lasers*, 42(1), 0103001 (2015).

TEACHING

Graduate student instructor

Jan 2020 - May 2020

EECS 504 Computer Vision (about 120 students)

- Gave a lecture on optimization and backpropagation.
- Designed homeworks on signal processing, scene recognition, and representation learning, etc.
- Mentored students on final projects.

Graduate student instructor

Sep 2017 - Dec 2017

EECS 545 Machine Learning (about 140 students)

- Designed homeworks and held weekly office hours.
- Gave a Python and Jupyter Notebook tutorial.

AWARDS

Rackham Graduate Research Grant (\$3000), University of Michigan, 2020

Rackham Graduate Travel Grant (\$1200), University of Michigan, 2018

Outstanding Graduate Award, Tianjin University, 2015

National Scholarship, Chinese Ministry of Education, 2014

Kitano Foundation of Lifelong Integrated Education Scholarship, Nankai University, 2013

Grand Prize of Physics Competition for College Students, Tianjin, 2013

First Tier Scholarship, Nankai University, 2012

REVIEWING SERVICE

Reviewer for: NeurIPS'20, MLHC'18-20, AMIA'20

Subreviewer for: KDD'18-19, NeurIPS'18