

# ZIFENG WANG

805 Columbus Ave, Boston, MA 02120

✉ zifengwang@ece.neu.edu 🌐 kingspencer.github.io ☎ (857) 869-4013

## EDUCATION

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### Northeastern University

Boston, MA

PhD Candidate in Computer Engineering, GPA: 4.0 / 4.0

Sep 2018 – May 2023 (expected)

- With a focus on Machine Learning, especially *Continual (Lifelong) learning*.

### Tsinghua University

Beijing, China

Bachelor of Engineering in Electronic Engineering, GPA: 92 / 100

July 2018

- Ranked in top 5% of 233 students.

## WORK EXPERIENCE

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### Cloud AI Research, Google

Remote

*Research Intern; Hosted by: Zizhao Zhang, Chen-Yu Lee*

June 2021 – Present

- Led the research project of *Continual learning for large-scale pre-trained models*.
- Collaborated and led weekly discussion with a team of 6 full-time employees.
- Developed a complex continual learning framework in JAX.
- Proposed a novel method called *Learning to Prompt (L2P)*, where the backbone model is prompted dynamically to solve tasks sequentially. L2P achieves state-of-the-art performance on multiple benchmarks.
- Finished a research paper as the first author, under review at a top-tier ML conference.

## ACADEMIC EXPERIENCE

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### Machine Learning Group, Northeastern University

Boston, MA

*Research Assistant; Advised by: Prof. Jennifer Dy, Prof. Stratis Ioannidis*

Sep 2018 – Present

- Led the research topic of *Lifelong/Continual Learning*, proposed and implemented several novel deep learning based algorithms in PyTorch and TensorFlow.
- Contributed to the development of *Radiofrequency Machine Learning System*, a software library for massive scale (10k+ classes, 7TB data) radiofrequency signal classification.
- Published papers in top-tier conferences (NeurIPS, ICDM, etc.).
- Involved in different research subgroups, presented and communicated with colleagues weekly.
- Analyzed and preprocessed data from different domains.

### Channing Laboratory, Harvard Medical School

Boston, MA

*Collaborator; Advised by: Dr. Peter J. Castaldi, Prof. Jennifer Dy*

Sep 2018 – Present

- Developed a novel deep learning model which combines biological domain knowledge for patients' smoking status prediction using RNAseq data, achieved state-of-the-art accuracy and better interpretability.
- Led the writing of a journal paper, accepted by PLOS Computational Biology.
- Collaborated with doctors and presented results to researchers with biology backgrounds.

### i-Vision Group, Tsinghua University

Beijing, China

*Undergrad Research Assistant; Advised by: Prof. Jiwen Lu*

Sep 2017 – Mar 2018

- Implemented a novel algorithm to track multiple people in video clips using a deep reinforcement learning based approach with state-of-the-art performance, coauthored a paper published in ECCV.
- Helped conduct experiments with competing methods and did comprehensive literature review.

**Vision & Learning Lab**, University of Michigan

Ann Arbor, Michigan

*Visiting Student; Advised by Prof. Jia Deng*

July 2017 – Sep 2017

- Implemented the End-to-End Hourglass model, a deep learning model for instance segmentation problem in computer vision, achieved state-of-the-art results on MSCOCO dataset.
- Contributed to refactoring and optimization of the codebase with multiple collaborators, improved the performance by 8% in mean average precision and 80% in running speed.

## AWARDS

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**Best Paper Candidate**, ICDM 2020

Sorrento, Italy

**Best Paper Award**, IEEE DySPAN 2019

Newark, NJ

**Dean's Fellowship**, Northeastern University, 2018

Boston, MA

**Outstanding Undergraduate Scholarship**, Tsinghua University, 2016

Beijing, China

## SELECTED PUBLICATIONS

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### Conference Papers

- **Zifeng Wang**, Tong Jian, Aria Masoomi, Stratis Ioannidis and Jennifer Dy. “Revisiting Hilbert-Schmidt Information Bottleneck for Adversarial Robustness”. NeurIPS 2021.
- **Zifeng Wang\***, Tong Jian\*, Kaushik Chowdhury, Yanzhi Wang, Jennifer Dy, and Stratis Ioannidis. “Learn-Prune-Share for Lifelong Learning”. ICDM 2020.
- **Zifeng Wang**, Batool Salehi, Andrey Gritsenko, Kaushik Chowdhury, Stratis Ioannidis, and Jennifer Dy. “Open-World Class Discovery with Kernel Networks”. ICDM 2020. **Best Paper Candidate**.
- Aria Masoomi, Chieh Wu, Tingting Zhao, **Zifeng Wang**, Peter Castaldi, Jennifer Dy. “Instance-wise Feature Grouping”. NeurIPS 2020.
- Andrey Gritsenko\*, **Zifeng Wang\***, Jennifer Dy, Kaushik Chowdhury, and Stratis Ioannidis. “Finding a ‘New’ Needle in the Haystack: Unseen Radio Detection in Large Populations Using Deep Learning”. DySPAN 2019, **Best Paper Award**.
- Liangliang Ren, Jiwen Lu, **Zifeng Wang**, et al. “Collaborative Deep Reinforcement Learning for Multi-Object Tracking”. ECCV 2018.

### Journal Papers

- **Zifeng Wang**, Aria Masoomi, et al. “Improved Prediction of Smoking Status via Isoform-Aware RNAseq Deep Learning Models”. PLOS Computational Biology, to appear.
- Tong Jian, Yifan Gong, Zheng Zhan, Runbin Shi, Nasim Soltani, **Zifeng Wang**, et al. “Radio Frequency Fingerprinting on the Edge”. IEEE Transactions on Mobile Computing (2021).
- Tong Jian, Bruno Rendon, Emmanuel Ojuba, Nasim Soltani, **Zifeng Wang**, et al. “Deep Learning for RF Fingerprinting: A Massive Experimental Study”. IEEE Internet of Things Magazine 3 (1), 50-57.
- Huan Yan, **Zifeng Wang**, Tzu-Heng Lin, Yong Li, and Depeng Jin. “Profiling users by online shopping behaviors.” Multimedia Tools and Applications (2017): 1-11.

## SKILLS

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- Research: Machine Learning, Computer Vision, AI in Healthcare, AI in Communications.
- Software: PyTorch, JAX, TensorFlow, scikit-learn, Apache Spark, Apache Hadoop.
- Programming Languages: Python, C/C++, JAVA, MATLAB.
- Personal: Fast-learning, Problem-solving, Teamwork, Interpersonal Communication.

## ACADEMIC SERVICES

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- Reviewer: ICML 2021, NeurIPS 2021, ICLR 2022, TPAMI.