

# WANCONG ZHANG

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## Education

- PhD in Computer Science** 09/2023-Present  
New York University – Courant Institute, New York, NY
- MS in Computer Science – GPA: 3.9/4.0** 09/2018-09/2020  
New York University – Courant Institute, New York, NY
- BA in Chemistry– GPA: 3.7/4.0** 09/2009-05/2013  
Bard College, Annandale-on-Hudson, NY

## Research / Employment

- PhD Candidate, NYU** 09/2023-Present  
Advised by Prof. Yann LeCun
- Exploring hierarchical joint embedding prediction architecture (JEPA) for control.
  - Designed an efficient probing benchmark to evaluate the fitness of unsupervised visual representations for reinforcement learning. Applied it to systematically improve upon the state-of-art pretraining setup for Atari. [Paper](#)
- Senior Deep Learning Researcher, AssemblyAI** 02/2021-08/2023
- Spearheaded the creations of state-of-the-art [Conformer-1](#), [Conformer-2](#), and realtime automatic speech recognition (ASR) models.
  - Applied self supervised learning to train ASR models for low resource languages.
- M.S. Researcher, NYU** 09/2019-06/2020  
Advised by Profs Sam Bowman & Rajesh Ranganath
- Proposed MixUp algorithms for sentence classification using transformers, regularizing model training and reducing calibration error by 50%. [Preprint](#)
  - Built customized, fused CUDA kernels for a novel gateless RNN architecture. [Blog](#) [Git](#)
  - Derived the optimal chain rule sequence for computing the Jacobian of autoencoders, increasing backpropagation speed by >10x. [Report](#) [Git](#)
- Research Intern, University of Toronto** 06/2019-09/2019  
Advised by Prof. Marzyeh Ghassemi
- Implemented a multi-modal representation learner for healthcare data that utilizes lab vitals and medical notes to solve clinical tasks. [Paper](#)
- Software Engineer, Guardant Health** 07/2017-07/2018
- Fullstack web development and distributed systems
- Research Assistant, Harvard & Stanford Universities** 10/2013-10/2016
- Studied the molecular mechanisms of stem cell differentiation. [Paper](#)

## Publications

### **Light-weight probing of unsupervised representations for Reinforcement Learning**

W Zhang, A Chen, V Sobal, Y LeCun, N Carion  
Reinforcement Learning Conference 2024 [\[Paper\]](#)

**Conformer-1: Robust ASR via Large-Scale Semisupervised Bootstrapping**

W Zhang\*, L Chkhetiani,\* F Ramirez\*, Y Share, A Vanzo, M Liang, S Martin, G Oexle, R Bousbib,  
T Pesach, M Nguyen, D Pulliam, D Donato  
arXiv preprint 2024 [\[Preprint\]](#)

**A Comprehensive EHR time series pre-training benchmark**

M McDermott, B Nestor, W Zhang, P Szolovitz, A Goldenberg, M Ghassemi  
The ACM Conference on Health, Inference, and Learning 2021 [\[Paper\]](#)

**Mixup training leads to reduced overfitting and improved calibration for the  
transformer architecture**

W Zhang, I Vaidya  
arXiv preprint 2021 [\[preprint\]](#)