

# Hao He

haohe@mit.edu | +1 617-840-0491

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|-------------|--|----------------------|
| EDUCATION   | <b>Massachusetts Institute of Technology</b> , Cambridge, MA   | 2017 - present       |
|             | Ph.D. in Computer Science<br>• Advisor: Prof. Dina Katabi      GPA: 5.0/5.0  |                      |
|             | <b>Peking University</b> , China   | 2013 - 2017          |
|             | B.S. in Computer Science<br>• Major GPA: 3.93/4.00 (rank 1st)  |                      |
| EXPERIENCE  | <b>Research Assistant, MIT</b>   | Sep 2017 to Present  |
|             | Advisor: Prof. Dina Katabi<br>Project: Domain Adaptation for Health Care Applications<br>• Develop a novel algorithm for unsupervised domain adaptation in health care applications such as sleep monitoring, disease detection.   |                      |
|             | Project: Deep Learning for Distributed Circuit Design<br>• Develop a graph neural network model that optimizes high-frequency (THz) circuits.  |                      |
|             | Project: Learning-Augmented Wireless Sensing for Health Care and Smart Home<br>• Develop a WiFi-based fall detection system using 3D convolution networks.<br>• Develop the first WiFi-based breathing monitoring system that is able to extract breathing signals from multiple people in one bed and is robust to human motions. |                      |
|             | <b>Research Intern, Microsoft Research</b>   | Sep 2016 to Aug 2017 |
|             | Mentor: David Wipf<br>Project: Neural Sparse Bayesian Learning Algorithm<br>• Propose a novel DL model that solves sparse matrix inverse problem efficiently.<br>• Develop a theory that map the classic Sparse Bayesian Learning algorithm to standard recurrent neural network cell.   |                      |
|             | Mentor: Stephen Lin<br>Project: White Box Photo Post-Processing Framework<br>• Develop a framework that automatically learns the photo processing patterns for any given photo retouching style.   |                      |
| PUBLICATION | <b>Learning Compositional Koopman Operators for Model-Based Control</b><br>Yunzhu Li*, <b>Hao He*</b> , Jiajun Wu, Dina Katabi, Antonio Torralba<br>International Conference on Learning Representations (ICLR), 2020  |                      |
|             | <b>Learning Caching Policies with Subsampling</b><br>Haonan Wang, <b>Hao He</b> , Mohammad Alizadeh, Hongzi Mao<br>Machine Learning for Systems Workshop, NeurIPS, 2019  |                      |
|             | <b>Towards Safe Online Reinforcement Learning in Computer Systems</b><br>Hongzi Mao, Malte Schwarzkopf, <b>Hao He</b> , Mohammad Alizadeh<br>Machine Learning for Systems Workshop, NeurIPS, 2019  |                      |
|             | <b>Circuit-GNN: Graph Neural Networks for Distributed Circuit Design</b><br><b>Hao He*</b> , Guo Zhang*, Dina Katabi<br>International Conference on Machine Learning (ICML), 2019  |                      |
|             | <b>ProbGAN: Towards Probabilistic GAN with Theoretical Guarantees</b><br><b>Hao He</b> , Hao Wang, Guang-He Lee, Yonglong Tian<br>International Conference on Learning Representations (ICLR), 2019  |                      |
|             | <b>Hierarchical Bidirectional Inference Networks for Health Profiling</b><br>Hao Wang, Chengzhi Mao, <b>Hao He</b> , Dina Katabi, Tommi Jaakkola<br>The Thirty-Third AAAI Conference on Artificial Intelligence (AAAI), 2019   |                      |
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**From Bayesian Sparsity to Gated Recurrent Nets**

**Hao He**, Bo Xin, Satoshi Ikehata, David Wipf

Conference on Neural Information Processing Systems (NeurIPS), 2017 (*Oral*)

**RF-Based Fall Monitoring Using Convolutional Neural Networks**

**Hao He\***, Yonglong Tian\*, Guang-he Lee\*, Dina Katabi, Chen-yu Hsu

ACM International Joint Conference on Pervasive and Ubiquitous Computing, 2018

**Extracting Multi-Person Respiration from Entangled RF Signals**

Shichao Yue, **Hao He**, Dina Katabi

ACM International Joint Conference on Pervasive and Ubiquitous Computing, 2018

**Exposure: A White-Box Photo Post-Processing Framework**

Yuanming Hu, **Hao He**, Chenxi Xu, Baoyuan Wang, Stephen Lin

ACM Transactions on Graphics (TOG), 2018

**SERVICES**

**Reviewer:** ICML 20, NeurIPS 19, ICML 19

**Program Committee:** UAI 20, IJCAI 20, AAAI 20, UAI 19

**Workshop Reviewer or PC member:** NeurIPS 19 Reproducibility Challenge, NeurIPS 19 Graph Representation Learning, AAAI 20 AI for Social Impact, ICML 18 Theoretical Foundations and Applications of Deep Generative Models,

**COURSES**

**System:** Computer Network (6.892) (A+)

**AI:** Algorithm for Inference (6.438) (A), Information and Inference (6.437) (A), Fundamentals of Probability(6.436) (A), Bayesian Modelling and Inference (6.882) (A)

**Theory:** Learning-Augmented Algorithms (6.890) (A), An Algorithmist's Toolkit (18.408) (A+)

**AWARDS**

- National Scholarship for Excellent Academic Performance, China (highest, twice)
- Arawana Scholarship for Excellent Academic Performance, Peking University
- ACM-ICPC 2015 Asia Regional Shenyang Site, Gold Medal
- ACM-ICPC 2014 Asia Regional Anshan Site, Gold Medal