Guang-He **Lee**

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Research Interest: Deep Learning, Machine Learning, Time-Series, Natural Language Processing

Education

Massachusetts Institute of Technology (MIT) — *Cambridge, MA*

PH.D. IN COMPUTER SCIENCE AND ARTIFICIAL INTELLIGENCE LABORATORY (CSAIL) — *2017 - now*

- Advisor: Tommi S. Jaakkola
- GPA: 4.0/4.0; Selected Courses: Inference & Information, Algorithms for Inference, Statistical Learning Theory, Nonlinear Optimization

National Taiwan University (NTU) — *Taipei, Taiwan*

M.S./B.S. IN DEPT. OF COMPUTER SCIENCE AND INFORMATION ENGINEERING (CSIE) — *2016 - 2017/2011 - 2015*

- (M.S.) Advisor: Yun-Nung (Vivian) Chen. Thesis: Unsupervised Sense Representation by Reinforcement Learning [PDF]
- (B.S.) GPA: 4.2/4.3; Rank: 2/111; Straight A+ in undergraduate CSIE courses.
- Selected Courses (All A+): Machine Learning, Machine Learning: Theory and Practice (KDD Cup), Machine Learning and Having it Deep and Structured, Natural Language Processing, Social Network Analysis, Web Retrieval and Mining, Parallel Programming.
- Programming Language: C/C++, Python, Matlab; Tool: PyTorch, TensorFlow, Scikit-Learn, OpenMP, Pthread, Caffe, Latex.

Papers and Patents

Conference Papers

[1] G.-H. Lee, D. Alvarez-Melis, and T. S. Jaakkola, "Towards Robust, Locally Linear Deep Networks" **under submission to** *International Conference on Learning Representations (ICLR'19)* [PDF]

[2] C.-Y. Hsu, R. Hristov, G.-H. Lee, M. Zhao, and D. Katabi, "Enabling Identification and Behavioral Sensing in Homes using Radio Reflections" (to appear) in *2019 ACM Conference on Human Factors in Computing Systems (CHI'19)*

[3] G.-H. Lee*, Y. Tian*, H. He*, C.-Y. Hsu, and D. Katabi, "RF-Based Fall Monitoring Using Convolutional Neural Networks" in *ACM International Joint Conference on Pervasive and Ubiquitous Computing (Ubicomp'18 / IMWUT)* [PDF]

[4] G.-H. Lee and Y.-N. Chen, "MUSE: Modularizing Unsupervised Sense Embeddings" in *Proc. of the 2017 Conference on Empirical Methods in Natural Language Processing (EMNLP'17) (acceptance rate: 22.8%)*, pages 327-337, Sep. 2017. ACL. [PDF]

[5] G.-H. Lee, S.-W. Yang, and S.-D. Lin, "Toward Implicit Sample Noise Modeling: Deviation-driven Matrix Factorization," arXiv preprint. [PDF]

[6] G.-H. Lee and S.-D. Lin, "LambdaMF: Learning Nonsmooth Ranking Functions in Matrix Factorization Using Lambda," in *Proc. of the 2015 IEEE International Conference on Data Mining (ICDM'15) (acceptance rate: 18.2%)*, pages 823-828, Nov. 2015. IEEE. [PDF]

Workshop Papers

[7] G.-H. Lee, D. Alvarez-Melis, and T. S. Jaakkola, "Game-Theoretic Interpretability for Temporal Modeling" in *the 5th Workshop on Fairness, Accountability, and Transparency in Machine Learning (FAT/ML 2018) at ICML 2018*, Stockholm, Sweden, 2018. [PDF]

[8] H. He, H. Wang, G.-H. Lee, and Y. Tian, "Bayesian Modelling and Monte Carlo Inference for GAN" in *ICML 2018 Workshop on Theoretical Foundations and Applications of Deep Generative Models*, Stockholm, Sweden, 2018. [PDF]

Pending Patent Applications

[9] G.-H. Lee and S.-W. Yang, "Observing the Unobserved: A Multi-modal Approach using Missing Data Tensor Factorization," international patent filing application under Patent Cooperation Treaty (PCT): *PCT/US2015/049110*.

[10] G.-H. Lee and S.-W. Yang, "Interactive Sampling Monitoring for Low-power IOT using Discriminative Probabilistic Tensor Factorization," international patent filing application under PCT: *PCT/US2015/000390*.

[11] G.-H. Lee, K. Algotar, S.-W. Yang, and A. Sanjay, "Ultra-reliable Indoor Positioning using Random Forests with Temporal Bagging," international patent filing application under PCT: *PCT/US2015/067244*.

[12] Y.-A. Chung, G.-H. Lee, and S.-W. Yang, "Cost-Sensitive Classification with Deep Learning using Cost Aware Pre-Training," U.S. patent filing application: *P88497/14/757,959*.

Honors and Awards

Best Master Thesis Award — *ACLCLP*, *2017*
- Recognizes the Best Master Thesis in NLP research among all universities in Taiwan.

Best Master Thesis Award — *TAAI*, *2017*
- Recognizes the Best Master Thesis in AI research among all universities in Taiwan.

Presidential Awards (8 times) — *NTU*, *2011-2015 (every semester)*
- Recognizes students with top 5% GPA in each department in each semester.

The Honorary Member of the Phi Tau Phi Scholastic Honor Society — *Phi Tau Phi Scholastic Honor Society*, *2015*
- Honors top 1% of undergraduate graduands in academic performance and moral conduct among about 300 graduands in the College of EECS at NTU.

Microsoft-IEEE Young Fellowship — *Microsoft Research Asia and IEEE*, *2014*
- Recognizes prominent young researchers in Asia (3 recipients in Taiwan).

Irving T. Ho Memorial Scholarship — *Irving T. Ho Memorial Foundation*, *2013 and 2014*
- Awards to top undergraduate students in the College of EECS at NTU (4 recipients in 2013 and 2 recipients in 2014).

Professional and Extracurricular Activity

Program Committee Member
- 33rd AAAI Conference on Artificial Intelligence (AAAI 2019)

Reviewer
- 2018 ICML workshop on Theoretical Foundations and Applications of Deep Generative Models

Teaching Assistant — *Dept. of IDSS, MIT*, *2018*
- Applied Machine Learning, instructed by Prof. Tommi Jaakkola and Regina Barzilay

Teaching Assistant — *Dept. of CSIE, NTU*, *2013, 2016, and 2017*
- Algorithm Design and Analysis, Fall 2013 (82 students), instructed by Prof. Hsin-Mu Tsai.
- Machine Discovery, Fall 2016 (90 students), instructed by Prof. Shou-De Lin.
- Intelligent Conversational Bot, Spring 2017 (88 students), instructed by Prof. Yun-Nung Chen.

Research Intern — *Intel Labs, Intel Corporation*, *2015*
- Robust Machine Learning, Passive RFID tracking, and Cost-sensitive Deep Learning

Student Volunteer — *Ukulele Club, NTU*, *2014*

Charity camp for countryside elementary school
- Raised 40 ukuleles and taught disadvantaged children to play ukulele.

Director of Team Mentors — *Dept. of CSIE, NTU*, *2012*

NTU CSIE camp for senior high school students
- Led 20 mentors (college students) to train 100 participated senior high school students on basic computer science.

References

Tommi S. Jaakkola

Thomas Siebel Professor, MIT CSAIL
- tommi@csail.mit.edu

Dina Katabi

Andrew and Erna Viterbi Professor, MIT CSAIL
- dina@csail.mit.edu