

Yingzhen Li

Microsoft Research Cambridge
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PROFESSIONAL EXPERIENCE

Microsoft Research
Senior Researcher

Cambridge, UK
Aug 2018 -

- ◇ Responsibilities: develop high-impact research agenda in machine learning; collaborate with researchers and product teams to develop new AI products; supervise post-doc researchers, interns and AI residents; write research code and publish research papers at top-tier conferences.

Disney Research
Research Intern

Pittsburgh, PA, USA
June - Sept 2017

Mentor: Dr. Stephan Mandt

- ◇ Developed a generative system for video/audio synthesis that learned disentangled representation of object/speaker identity and pose/speech content without labels or supervisions.
- ◇ Published an ICML 2018 paper, and filed a patent application (see publications).

EDUCATION

University of Cambridge
Ph.D. in Engineering

Cambridge, UK
July 2018

Machine Learning Group, supervisor: Dr. Richard E. Turner

- ◇ Dissertation: *Approximate Inference: New Visions*
Committee: Prof. Zoubin Ghahramani & Dr. Sebastian Nowozin

Sun Yat-sen University
B.S. in Mathematics

Guangzhou, China
June 2013

- ◇ Graduated with distinction (5%), GPA overall 3.9/4.0, major 4.0/4.0

PUBLICATIONS

Google Scholar page: <https://scholar.google.com/citations?user=gcfs8N8AAAAJ&hl=en>

CONFERENCE PUBLICATIONS (*★ representative papers*)

Maximilian Igl, Kamil Ciosek, **Yingzhen Li**, Sebastian Tschitschek, Cheng Zhang, Sam Devlin and Katja Hofmann. Generalization in Reinforcement Learning with Selective Noise Injection and Information Bottleneck. *Neural Processing Information Systems (NeurIPS)*, 2019.

- ★ **Yingzhen Li**, John Bradshaw and Yash Sharma. Are Generative Classifiers More Robust to Adversarial Attacks? *International Conference on Machine Learning (ICML)*, 2019.

Chao Ma, **Yingzhen Li** and José Miguel Hernández-Lobato. Variational Implicit Processes. *International Conference on Machine Learning (ICML)*, 2019. (long oral, 4.5%)

Ehsan Shareghi, **Yingzhen Li**, Yi Zhu, Roi Reichart and Anna Korhonen. Bayesian Learning for Neural Dependency Parsing. *Annual Conference of the North American Chapter of the Association for Computational Linguistics (NAACL-HLT)*, 2019.

Wenbo Gong*, **Yingzhen Li*** and José Miguel Hernández-Lobato. Meta-learning for Stochastic Gradient MCMC. *International Conference on Learning Representations (ICLR)*, 2019. (joint first author)

★ **Yingzhen Li** and Stephan Mandt. Disentangled Sequential Autoencoder. *International Conference on Machine Learning (ICML)*, 2018.

★ **Yingzhen Li** and Richard E. Turner. Gradient Estimators for Implicit Models. *International Conference on Learning Representations (ICLR)*, 2018.

Cuong V. Nguyen, **Yingzhen Li**, Thang D. Bui and Richard E. Turner. Variational Continual Learning. *International Conference on Learning Representations (ICLR)*, 2018.

Yingzhen Li and Yarin Gal. Dropout Inference in Bayesian Neural Networks with Alpha-divergences. *International Conference on Machine Learning (ICML)*, 2017.

★ **Yingzhen Li** and Richard E. Turner. Rényi Divergence Variational Inference. *Neural Processing Information Systems (NIPS)*, 2016.

José Miguel Hernández-Lobato*, **Yingzhen Li***, Mark Rowland, Daniel Hernández-Lobato, Thang D. Bui and Richard E. Turner. Black-box Alpha-divergence Minimization. *International Conference on Machine Learning (ICML)*, 2016. (joint first author)

Thang D. Bui, Daneil Hernández-Lobato, José Miguel Hernández-Lobato, **Yingzhen Li** and Richard E. Turner. Deep Gaussian Processes for Regression using Approximate Expectation Propagation. *International Conference on Machine Learning (ICML)*, 2016.

★ **Yingzhen Li**, José Miguel Hernández-Lobato and Richard E. Turner. Stochastic Expectation Propagation. *Neural Processing Information Systems (NIPS)*, 2015. (spotlight, 4.5%)

PATENTS

Stephan Mandt and **Yingzhen Li**. Efficient Encoding and Decoding Sequences using Variational Autoencoders. *United States Patent Application 20190392302 A1*. Assignee: Disney Enterprises Inc.

REFEREED WORKSHOP ABSTRACTS

Chaochao Lu, Richard E. Turner, **Yingzhen Li** and Nate Kushman. Interpreting Spatially Infinite Generative Models. *International Conference on Machine Learning (ICML 2020) Workshop on Human Interpretability in Machine Learning*, 2020.

Andrew Y. K. Foong*, David R. Burt*, **Yingzhen Li** and Richard E. Turner. Pathologies of Mean-field Approximations in Bayesian Neural Networks. *Neural Information Processing Systems (NeurIPS 2019) Bayesian deep learning workshop*, 2019.

Victor Prokhorov, Ehsan Shareghi, **Yingzhen Li**, Mohammad Taher Pilehvar and Nigel Collier. On the Importance of the Kullback-Leibler Divergence Term in Variational Autoencoders for Text Generation. *Conference on Empirical Methods in Natural Language Processing (EMNLP-IJCNLP 2019) Workshop on Neural Generation and Translation*, 2019.

Andrew Y. K. Foong, **Yingzhen Li**, José Miguel Hernández-Lobato and Richard E. Turner. “In-between” Uncertainty in Bayesian Neural Networks. *International Conference on Machine Learning (ICML 2019) Workshop on robustness and uncertainty in deep learning*, 2019.

Cheng Zhang and **Yingzhen Li**. A Causal View on Robustness of Neural Networks. *International Conference on Machine Learning (ICML 2019) Workshop on deep learning theory, 2019*.

Yingzhen Li. Approximate Gradient Descent for Training Implicit Generative Models. *Neural Information Processing Systems (NIPS 2017) Bayesian deep learning workshop, 2017*.

Yingzhen Li, Richard E. Turner and Qiang Liu. Approximate Inference with Amortised MCMC. *International Conference on Machine Learning (ICML 2017) Workshop on Implicit Models, 2017*.

Yingzhen Li and Qiang Liu. Wild Variational Approximations. *Neural Information Processing Systems (NIPS 2016) Advances in approximate inference (AABI) workshop, 2016*.

Yingzhen Li and Richard E. Turner. A Unifying Approximate Inference Framework from Variational Free Energy Relaxation. *Neural Information Processing Systems (NIPS 2016) Advances in approximate inference (AABI) workshop, 2016*.

Daniel Hernández-Lobato, José Miguel Hernández-Lobato, **Yingzhen Li**, Thang D. Bui and Richard E. Turner. Stochastic Expectation Propagation for Large Scale Gaussian Process Classification. *Neural Information Processing Systems (NIPS 2015) Advances in approximate inference (AABI) workshop, 2015*.

INVITED TALKS

On estimating epistemic uncertainty Invited talk, Bayesian deep learning workshop, NeurIPS 2019	Dec 2019
On the uncertainty estimation of Bayesian neural networks Invited talk, UNSURE workshop, MICCAI 2019	Oct 2019
Bayesian neural networks: a function space view tour Invited lecture, Gaussian Process Summer School 2019, U Sheffield	Sept 2019
Gradient estimators of implicit models using Stein's method Invited talk, Stein's method workshop, ICML 2019	June 2019
On KL divergence and beyond Invited talk, Language technology seminar, U Cambridge	Nov 2018
Meta-learning for SG-MCMC Invited talk, Uncertainty in deep learning workshop, UAI 2018	Aug 2018
Efficient computation for Bayesian deep learning Colloquiums at MSR Cambridge, U Oxford, OpenAI	Mar 2018
Gradient estimators for implicit models Invited talk, Advances in approximate Bayesian inference workshop, NIPS 2017	Dec 2017
Wild approximate inference: why and how Invited talk, CSML seminar, UCL	Dec 2017
Approximate inference with Amortised MCMC Invited talk, CamAIML 2017, MSR Cambridge	Mar 2017
Objective functions for variational auto-encoders Invited talk, Twitter Cortex London	May 2016
Variational inference with Rényi divergence Invited talk, MSR Cambridge	Mar 2016

ACADEMIC SERVICES

JOURNAL REVIEWING

Journal of Machine Learning Research (JMLR)
 IEEE Transactions on Pattern Analysis and Machine Intelligence (TPAMI)
 Artificial Intelligence (AIJ)
 Neural Computing
 The Annals of Statistics (AOS)

CONFERENCE REVIEWING

Area chair/Senior PC:

AAAI Conference on Artificial Intelligence (AAAI 2020)
 Neural Information Processing Systems (NeurIPS 2019)
 International Conference on Machine Learning (ICML 2019, 2020)
 International Conference on Artificial Intelligence and Statistics (AISTATS 2019)
 International Conference on Learning Representations (ICLR 2021)

PC member:

Neural Information Processing Systems (NIPS 2016, 2017, NeurIPS 2018, 2020)
 International Conference on Machine Learning (ICML 2017, 2018)
 International Conference on Learning Representations (ICLR 2017, 2018, 2019, 2020)
 International Joint Conference on Artificial Intelligence (IJCAI 2017, 2019)
 AAAI Conference on Artificial Intelligence (AAAI 2018)
 International Conference on Artificial Intelligence and Statistics (AISTATS 2018, 2020)
 Uncertainty in Artificial Intelligence (UAI 2020)

MENTORSHIP

MSR CAMBRIDGE INTERN/AI RESIDENT/VISITOR (CO-)SUPERVISION

Research interns:

Maximillian Igl (University of Oxford, Feb - May 2019) Chaochao Lu (University of Cambridge, Feb - May 2019) Ruqi Zhang (Cornell University, June - Aug 2019) Sebastian Lunz (University of Cambridge, June - Aug 2019) Xun Zheng (Carnegie Mellon University, June - Aug 2019) Jooyeon Kim (KAIST, June - Aug 2019) Haiyan Yin (Nanyang technological university, Sept - Nov 2019) Marco Federici (University of Amsterdam, Oct 2019 - Feb 2020) Hippolyt Ritter (University College London, June - Aug 2020) Philip Ball (University of Oxford, June - Aug 2020) James Jordon (University of Oxford, July - Sept 2020)

AI residents:

Hiske Overweg (Oct 2018 - Mar 2019) Anna-Lena Popkes (Oct 2018 - Mar 2019) Angus Lamb (Oct 2019 - Mar 2020) Evgeny Saveliev (Oct 2019 - Mar 2020)

Visitors:

Rika Antonova (KTH, Nov 2018 - Feb 2019)

UNIVERSITY OF CAMBRIDGE STUDENT (CO-)SUPERVISION AND COLLABORATION

PhD students:

Chao Ma (Engineering, 2018 -), Wenbo Gong (Engineering, 2018 -), Andrew F. K. Foong (Engineering, 2019 -), David R. Burt (Engineering, 2019 -), Yi Zhu (Linguistics, 2019 -), Victor Prokhorov (Linguistics, 2019 -)

Mphil/MEng project students:

Vera Gangeskar Johne (Engineering, 2016), Alexander Yakub (Engineering, 2016), Wenbo Gong (Engineering, 2017), Andy Renqiao Zhang (Engineering, 2017), Siddharth Swaroop (Engineering, 2017)

Undergraduate project students:

Artem Vasenin (Computer Science, 2017)

TEACHING

Microsoft Research AI residency program (lectures and project mentoring), MSR Cambridge	2018 - 2020
Part IIA 3F7 Information Theory and Coding, U Cambridge	Oct - Dec 2016
Mphil in machine learning (modules/lab sessions), U Cambridge	Oct 2015 - Apr 2016
Part IIA 3F6 software engineering, U Cambridge	Jan - Mar 2015
Part IB C++ computing, U Cambridge	Jan - Mar 2014

AWARDS

ICML travel award (\$1,800) , IMLS	2017
Neural Information Processing Systems travel award (\$800) , Google	2015
FFTF fellowship award (\$50,000/year) , Schlumberger Foundation	2014 - 2018
Best Bachelor's thesis award (3%) , Sun Yat-sen University	2013
Student scholarship (20%) , 21st Machine Learning Summer School, Kyoto University	2012
Excellent student scholarship (5%) , Sun Yat-sen University	2010 - 2013

MISCELLANEOUS**SKILLS**

Software: python (tensorflow/pytorch), matlab, C/C++.

Languages: native/fluent in Chinese Mandarin/Cantonese and English.

EXTRACURRICULAR

Crew member (women team 2) , Darwin College Boat Club, Cambridge, UK	2014 - 2015
Co-organiser/participant , 1st/3rd Hackathon for undergraduates, Guangzhou, China	Aug 2011/2012
University Taekwondo team member , Sun Yat-sen University, Guangzhou, China	2010 - 2012
Student journalist & editor , news center, Sun Yat-sen University, Guangzhou, China	2009 - 2011

NAME IN CHINESE CHARACTERS

Surname: 李 (Li)

Given name: 映真 (Yingzhen)

CV last updated: Aug 2020