

TUAN ANH LE—CURRICULUM VITAE

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Email: tuananh@mit.edu

Website: <https://www.tuananhle.co.uk>

Google Scholar: <https://scholar.google.com/citations?user=tkceMM0AAAAJ>

EXPERIENCE

Massachusetts Institute of Technology, Cambridge, MA, US September 2019–Present
Postdoctoral Associate

- I work on probabilistic programming, generative modeling and amortized inference. I want to build systems that can efficiently learn concepts, understand scenes and agent behavior by drawing on research in computational cognitive science.
- Advised by Josh Tenenbaum.

Google DeepMind, London, UK July 2018–December 2018
Research Scientist Intern

- Research on auxiliary-variable variational autoencoders and neural processes which resulted in a NeurIPS workshop publication.
- Advised by Yee Whye Teh.

VisualDNA, London, UK July 2014–September 2014
Research Scientist Intern

- Research, implementation and testing of classification algorithms.

EDUCATION

University of Oxford, UK October 2015–June 2019
DPhil in Machine Learning. Passed with no corrections.

- Thesis title: *Amortized Inference and Model Learning for Probabilistic Programming.*
- Advised by Frank Wood; co-advised by Yee Whye Teh towards the end of the degree.
- Examiners: Arnaud Doucet, Théophane Weber-de Tonquedec.

University of Oxford, UK October 2011–June 2015
MEng in Engineering Science. First class in all years.

- Demyship in Magdalen College for excellent performance in exams.
- Tutorial Prize in Engineering Science and Joint Schools for excellent performance in exams.
- 3rd year group project: Compared time-series classification algorithms to infer sleep apnea from sound.
- 4th year project (Masters' thesis): Improved an inference algorithm in the Anglican probabilistic programming system. Explored data-driven proposals for sequential Monte Carlo for probabilistic programming.

AWARDS

- NeurIPS 2019 Travel Award
- ICML 2018 Travel Award
- NeurIPS 2017, Bayesian Deep Learning Workshop, contributed talk
- AISTATS 2017 Travel Grant
- Machine Learning Summer School, Cadiz 2016
- Google Studentship (Project code DF6700)
- EPSRC DTA Studentship
- NeurIPS 2015 Black Box Learning and Inference Workshop, complimentary registration

TALKS

- “Neurosymbolic generative models”
 - Josh Tenenbaum’s group, MIT, July 2020
- “Learning and amortized inference in probabilistic programs”
 - VinAI, Hanoi, Vietnam, January 2020
 - Pierre Jacob’s group, Harvard, December 2019
 - Stephanie Jegelka’s group, MIT, December 2019
- “Inference compilation and model learning for probabilistic programming”
 - Data Science Lab, Hanoi University of Science and Technology, Vietnam, May 2019
 - MIT CSAIL, October 2018
 - Jan-Willem van de Meent’s group, Northeastern University, October 2018
- “Inference compilation”
 - Università della Svizzera italiana, Lugano, September 2017
- “Improving the random database algorithm for probabilistic programming”
 - Cambridge Machine Learning Group, University of Cambridge, April 2015


TEACHING

- Tutorial on Inference Compilation for the *Accelerating Data Science with HPC* summer school, Università della Svizzera italiana, Lugano, 2017
- Wrote lecture notes for *C19 Unsupervised Machine Learning* (4th year undergraduate course), Engineering Science, University of Oxford, 2017
- Teaching assistant for *B14 Estimation and Inference* (3rd year undergraduate course), Engineering Science, University of Oxford, 2016
- Teaching assistant for *Machine Learning* module, Centre for Doctoral Training in Autonomous Intelligent Machines and Systems, University of Oxford, 2016
- Workshop on probabilistic programming (using Anglican and other tools), Southampton University, UK, 2016

REVIEWING

- International Conference on Machine Learning (ICML) 2017, 2018, 2019
- Advances in Neural Information Processing Systems (NeurIPS) 2017, 2019, 2020
- NeurIPS Deep Learning for Physical Sciences Workshop 2018
- International Conference on Learning Representations (ICLR) 2018, 2019, 2020


PUBLICATIONS

[Google Scholar link](#) (highlighted publications have a preceeding )

In Submission / Preprints

P1 Hofer, M. R., **Le, T. A.**, Levy, R., & Tenenbaum, J. B. (2020). *Learning evolved combinatorial symbols with a neuro-symbolic generative model.*

Conference proceedings

C1 Hewitt, L. B., **Le, T. A.**, & Tenenbaum, J. B. (2020). *Learning to learn generative programs with Memoised Wake-Sleep.* Uncertainty in Artificial Intelligence. [\[pdf\]](#)

C2 Teng, M., **Le, T. A.**, Scibior, A., & Wood, F. (2020). *Semi-supervised Sequential Generative Models.* Uncertainty in Artificial Intelligence. [\[pdf\]](#)

C3 Wu, H., Zimmermann, H., Sennesh, E., **Le, T. A.**, & van de Meent, J.-W. (2020). *Amortized Population Gibbs Samplers with Neural Sufficient Statistics.* International Conference on Machine Learning. [\[pdf\]](#)

- C4 Masrani, Vaden, **Le, T. A.** & Wood, F. (2019). *The Thermodynamic Variational Objective*. *Advances in Neural Information Processing Systems*. [pdf]
- *C5 **Le, T. A.**, Kosiorek, A. R., Siddharth, N., Teh, Y. W., & Wood, F. (2019). *Revisiting Reweighted Wake-Sleep Uncertainty in Artificial Intelligence*. [pdf]
- C6 Igl, M., Zintgraf, L., **Le, T. A.**, Wood, F., & Whiteson, S. (2018). Deep Variational Reinforcement Learning for POMDPs. *International Conference on Machine Learning*. [pdf]
- *C7 Rainforth, T., Kosiorek, A. R., **Le, T. A.**, Maddison, C. J., Igl, M., Wood, F., & Teh, Y. W. (2018). Tighter Variational Bounds are Not Necessarily Better. *International Conference on Machine Learning*. [pdf]
- *C8 **Le, T. A.**, Igl, M., Rainforth, T., Jin, T., & Wood, F. (2018). Auto-Encoding Sequential Monte Carlo. *International Conference on Learning Representations*. [pdf]
- C9 **Le, T. A.**, Baydin, A. G., Zinkov, R., & Wood, F. (2017). Using Synthetic Data to Train Neural Networks is Model-Based Reasoning. *International Joint Conference on Neural Networks*. [pdf]
- *C10 **Le, T. A.**, Baydin, A. G., & Wood, F. (2017). Inference Compilation and Universal Probabilistic Programming. *Artificial Intelligence and Statistics*. [pdf]
- C11 Rainforth, T., and **Le, T. A.**, van de Meent, J.-W., Osborne, M., & Wood, F. (2016). Bayesian Optimization for Probabilistic Programs. *Advances in Neural Information Processing Systems*. [pdf]

Workshop publications

- W1 **Le, T. A.**, Kim, H., Garnelo, M., Rosenbaum, D., Schwarz, J., & Teh, Y. W. (2018). Empirical Evaluation of Neural Process Objectives. *In NeurIPS Workshop on Bayesian Deep Learning*. [pdf]
- W2 Casado, M. L., Baydin, A. G., Rubio, D. M., **Le, T. A.**, Wood, F., Heinrich, L., Louppe, G., Cranmer, K., Bhimji, W., Ng, K., Prabhat. (2017). Improvements to Inference Compilation for Probabilistic Programming in Large-Scale Scientific Simulators. *NIPS Workshop on Deep Learning for Physical Sciences*. [pdf]
- W3 **Le, T. A.**, Baydin, A. G., & Wood, F. (2016). Nested Compiled Inference for Hierarchical Reinforcement Learning. *In NIPS Workshop on Bayesian Deep Learning*. [pdf]
- W4 Perov, Y., **Le, T. A.**, & Wood, F. (2015). Data-driven Sequential Monte Carlo in Probabilistic Programming. *In NIPS Workshop on Black Box Learning and Inference*. [pdf]