

Dustin Tran

Ph.D. Student
Columbia University
Department of Computer Science
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Education

Ph.D. Computer Science, Columbia University 2016–
Advisors: David M. Blei, Andrew Gelman
M.S. Computational Science & Engineering, Harvard University 2014–2015
Advisor: Edoardo M. Airoidi
B.A. (Hon.) Mathematics, Statistics, University of California, Berkeley 2010–2014

Employment

Research Intern May 2017 –
OpenAI
Visiting Researcher May 2016 – Aug 2016
Graduate School of Business, Stanford University
Collaborators: Susan Athey, Matt Hoffman, Kevin Murphy
Visiting Researcher 2015
Department of Statistics and Computer Science, Columbia University
Supervisors: David M. Blei, Andrew Gelman

Awards

Google Ph.D. Fellowship in Machine Learning (\$34,000 + tuition/fees) 2017–
Columbia SEAS Fellowship (Full funding) 2016–
Adobe Research Fellowship (\$10,000) 2016
LinkedIn Economic Graph Challenge 2015
Harvard GSAS Fellowship (Full funding) 2015
Dorothea Klumpke Roberts Prize in Mathematics 2014
Regents' and Chancellor's Scholarship (Full funding) 2010–2014
Rose Hills Foundation Science & Engineering Grant (\$5,000) 2013
Cal Alumni Leadership Scholarship (\$2,500) 2010

Publications

PREPRINTS

1. **D. Tran**, D.M. Blei. Implicit causal models.
2. A. Gelman, A. Vehtari, P. Jylänki, T. Sivula, **D. Tran**, S. Sahai, P. Blomstedt, J.P. Cunningham, D. Schiminovich, and C. Robert. Expectation propagation as a way of life: A framework for Bayesian inference on partitioned data.
3. **D. Tran**, R. Ranganath, D.M. Blei. Deep and hierarchical implicit models.
4. **D. Tran**, A. Kucukelbir, A.B. Dieng, D. Liang, M. Rudolph, and D.M. Blei. Edward: A library for probabilistic modeling, inference, and criticism.
5. **D. Tran**, F.J.R. Ruiz, S. Athey, and D.M. Blei. Model criticism for Bayesian causal inference.
6. A.B. Dieng, **D. Tran**, R. Ranganath, J. Paisley, and D.M. Blei. The χ divergence for approximate inference.
7. **D. Tran**, A. Kucukelbir, A. Gelman, B. Carpenter, and D.M. Blei. Stan: Generalizing and automating variational inference.

JOURNAL ARTICLES

8. **D. Tran**, P. Toulis, and E.M. Airoldi. Stochastic gradient descent methods for estimation with large data sets. *Journal of Statistical Software*, To appear.
9. **D. Tran** and D.M. Blei. Comment, “Fast Approximate Inference for Arbitrarily Large Semiparametric Regression Models via Message Passing”. *Journal of the American Statistical Association*, 112(517):156–158, 2017.
10. A. Kucukelbir, **D. Tran**, R. Ranganath, A. Gelman, and D.M. Blei. Automatic differentiation variational inference. *Journal of Machine Learning Research*, 18(14):1–45, 2017.

CONFERENCE ARTICLES

11. **D. Tran**, M.D. Hoffman, R.A. Saurous, E. Brevdo, K. Murphy, and D.M. Blei. Deep probabilistic programming. In *International Conference on Learning Representations*, 2017.
12. R. Ranganath, J. Altsaar, **D. Tran**, and D.M. Blei. Operator variational inference. In *Neural Information Processing Systems*, 2016.
13. R. Ranganath, **D. Tran**, and D.M. Blei. Hierarchical variational models. In *International Conference on Machine Learning*, 2016.
14. **D. Tran**, M. Kim, and F. Doshi-Velez. Spectral M-estimation with application to hidden Markov models. In *Artificial Intelligence and Statistics*, 2016.
15. P. Toulis, **D. Tran**, and E.M. Airoldi. Towards stability and optimality in stochastic gradient descent. In *Artificial Intelligence and Statistics*, 2016.
16. **D. Tran**, R. Ranganath, and D.M. Blei. The variational Gaussian process. In *International Conference on Learning Representations*, 2016.

17. **D. Tran**, D.M. Blei, and E.M. Airoldi. Copula variational inference. In *Neural Information Processing Systems*, 2015.

Software

1. Edward: A library for probabilistic modeling, inference, and criticism 2016–
D. Tran, A. Kucukelbir, A.B. Dieng, D. Liang, M. Rudolph, and D.M. Blei.
2. Stan: A probabilistic programming language 2012–
A. Gelman, B. Carpenter, M. Hoffman, D. Lee, B. Goodrich, M. Betancourt, M. Brubaker, J. Guo, P. Li, A. Riddell, M. Inacio, J. Arnold, M. Morris, R. Trangucci, R. Goedman, B. Lau, J. Gabry, A. Kucukelbir, R. Grant, **D. Tran**, K. Sakrejda, A. Vehtari, R. Lei, and S. Weber.
3. sgd: An R package for large-scale estimation 2015–
D. Tran, P. Toulis, and E.M. Airoldi.

Teaching

1. Teaching Assistant | Columbia University 2016
STAT/CS 6509: Foundations of Graphical Models
2. Teaching Fellow | Harvard University 2015
AM 205: Advanced Scientific Computing–Numerical Methods
3. Teaching Assistant | University of California, Berkeley 2013
MATH 10B: Methods in Calculus, Statistics, Combinatorics
4. Teaching Assistant | University of California, Berkeley 2011
MATH 128A: Numerical Analysis

Professional Service

JOURNAL REVIEWING

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|---|-------|
| Foundations and Trends in Machine Learning | 2016– |
| Information Sciences | 2016– |
| Journal of Machine Learning Research | 2016– |
| Statistics and Computing | 2016– |
| Transactions on Pattern Analysis and Machine Intelligence | 2016– |

CONFERENCE REVIEWING

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| Artificial Intelligence and Statistics | 2017 |
| International Conference on Learning Representations | 2016, 2017 |
| International Conference on Machine Learning | 2016, 2017 |

Knowledge Discovery and Data Mining	2016
Neural Information Processing Systems	2016, 2017
Uncertainty in Artificial Intelligence	2016, 2017

WORKSHOP ORGANIZATION

ICML Workshop: Implicit Generative Models	2017
NIPS Workshop: Advances in Approximate Bayesian Inference	2016
NIPS Workshop: Advances in Approximate Bayesian Inference	2015

PROFESSIONAL MEMBERSHIPS

American Statistical Association
 Association of Computing Machinery
 Bernoulli Society
 Institute of Electrical and Electronics Engineers
 Institute for Mathematical Statistics
 International Society for Bayesian Analysis
 Royal Statistical Society

MENTORING

Akshay Khatri (M.S. Columbia University, 2017)

Invited Talks and Panels

1. 2nd S2I2 HEP/CS Workshop – PRINCETON, NJ	2017
2. Pfizer – BOSTON, MA	2017
3. The New York Academy of Sciences – NEW YORK, NY	2017
4. Etsy – BROOKLYN, NY	2017
5. PPAML/DARPA Meeting – ARLINGTON, VA	2017
6. New York City Machine Learning Meetup – NEW YORK, NY	2017
7. Johns Hopkins University – BALTIMORE, MD	2017
8. NIPS Workshop: Advances in Approximate Bayesian Inference – BARCELONA, ES	2016
9. NIPS Workshop: Practical Bayesian Nonparametrics – BARCELONA, ES	2016
10. Netflix Research – LOS GATOS, CA	2016
11. OpenAI – SAN FRANCISCO, CA	2016

12. Twitter Cortex – CAMBRIDGE, MA 2016
13. Google Brain – MOUNTAIN VIEW, CA 2016
14. International Conference on Learning Representations – SAN JUAN, PR 2016
15. PPAML/DARPA Meeting – NEW YORK, NY 2016
16. Harvard University – CAMBRIDGE, MA 2016
17. NIPS Workshop: Advances in Approximate Bayesian Inference – MONTREAL, CA 2015
18. NIPS Workshop: Black Box Learning and Inference – MONTREAL, CA 2015
19. Massachusetts Institute of Technology – CAMBRIDGE, MA 2015
20. Harvard University – CAMBRIDGE, MA 2015
21. Microsoft Research – CAMBRIDGE, MA 2015
22. University of Connecticut – STORRS, CT 2015
23. Max Planck Institute for Intelligent Systems – TÜBINGEN, DE 2015