

# Dustin Tran

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

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

## Employment

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

## Awards

Adobe Research Fellowship (\$10,000)	2016
Columbia SEAS Fellowship (Full funding)	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**, M.D. Hoffman, R.A. Saurous, E. Brevdo, K. Murphy, and D.M. Blei. Deep probabilistic programming.
2. **D. Tran**, A. Kucukelbir, A.B. Dieng, D. Liang, M. Rudolph, and D.M. Blei. Edward: A library for probabilistic modeling, inference, and criticism.
3. **D. Tran**, F.J.R. Ruiz, S. Athey, and D.M. Blei. Model criticism for Bayesian causal inference.
4. A.B. Dieng, **D. Tran**, R. Ranganath, J. Paisley, and D.M. Blei. The  $\chi$  divergence for approximate inference.
5. **D. Tran**, A. Kucukelbir, A. Gelman, B. Carpenter, and D.M. Blei. Stan: Generalizing and automating variational inference.
6. **D. Tran**, P. Toulis, and E.M. Airoldi. Stochastic gradient descent methods for estimation with large data sets.

#### JOURNAL ARTICLES

7. **D. Tran** and D.M. Blei. Discussion of “Fast Approximate Inference for Arbitrarily Large Semiparametric Regression Models via Message Passing”. *Journal of the American Statistical Association*, To appear.
8. A. Kucukelbir, **D. Tran**, R. Ranganath, A. Gelman, and D.M. Blei. Automatic differentiation variational inference. *Journal of Machine Learning Research*, To appear.

#### CONFERENCE ARTICLES

9. R. Ranganath, J. Alotaibi, **D. Tran**, and D.M. Blei. Operator variational inference. In *Neural Information Processing Systems*, 2016.
10. R. Ranganath, **D. Tran**, and D.M. Blei. Hierarchical variational models. In *International Conference on Machine Learning*, 2016.
11. **D. Tran**, M. Kim, and F. Doshi-Velez. Spectral M-estimation with application to hidden Markov models. In *Artificial Intelligence and Statistics*, 2016.
12. P. Toulis, **D. Tran**, and E.M. Airoldi. Towards stability and optimality in stochastic gradient descent. In *Artificial Intelligence and Statistics*, 2016.
13. **D. Tran**, R. Ranganath, and D.M. Blei. The variational Gaussian process. In *International Conference on Learning Representations*, 2016.
14. **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. Airolidi.

## 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

- |   |      |
|---|------|
| 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

- |  |            |
|--|------------|
| 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       |
| Uncertainty in Artificial Intelligence               | 2016       |

### WORKSHOP ORGANIZATION

- |   |      |
|---|------|
| 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

## Invited Talks and Panels

1. The New York Academy of Sciences – NEW YORK, NY 2017
2. Etsy – BROOKLYN, NY 2017
3. PPAML/DARPA Meeting – ARLINGTON, VA 2017
4. New York City Machine Learning Meetup – NEW YORK, NY 2017
5. Johns Hopkins University – BALTIMORE, MD 2017
6. NIPS Workshop: Advances in Approximate Bayesian Inference – BARCELONA, ES 2016
7. NIPS Workshop: Practical Bayesian Nonparametrics – BARCELONA, ES 2016
8. Netflix Research – LOS GATOS, CA 2016
9. OpenAI – SAN FRANCISCO, CA 2016
10. Twitter Cortex – CAMBRIDGE, MA 2016
11. Google Brain – MOUNTAIN VIEW, CA 2016
12. International Conference on Learning Representations – SAN JUAN, PR 2016
13. PPAML/DARPA Meeting – NEW YORK, NY 2016
14. Harvard University – CAMBRIDGE, MA 2016
15. NIPS Workshop: Advances in Approximate Bayesian Inference – MONTREAL, CA 2015
16. NIPS Workshop: Black Box Learning and Inference – MONTREAL, CA 2015
17. Massachusetts Institute of Technology – CAMBRIDGE, MA 2015
18. Harvard University – CAMBRIDGE, MA 2015
19. Microsoft Research – CAMBRIDGE, MA 2015
20. University of Connecticut – STORRS, CT 2015
21. Max Planck Institute for Intelligent Systems – TÜBINGEN, DE 2015