

# Dustin Tran

Ph.D. Student  
Columbia University  
Department of Computer Science  
New York, NY

dustin@cs.columbia.edu  
<http://www.dustintran.com/>

## 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 Supervisor: Susan Athey	Summer 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. 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 |
| 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       |
| 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

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| 1. NIPS Workshop: Advances in Approximate Bayesian Inference – BARCELONA, ES | 2016 |
| 2. NIPS Workshop: Practical Bayesian Nonparametrics – BARCELONA, ES          | 2016 |
| 3. Netflix Research – LOS GATOS, CA  | 2016 |
| 4. OpenAI – SAN FRANCISCO, CA  | 2016 |
| 5. Twitter Cortex – CAMBRIDGE, MA  | 2016 |
| 6. Google Brain – MOUNTAIN VIEW, CA  | 2016 |
| 7. International Conference on Learning Representations – SAN JUAN, PR       | 2016 |
| 8. PPAML/DARPA Meeting – NEW YORK, NY  | 2016 |
| 9. Harvard University – CAMBRIDGE, MA  | 2016 |
| 10. NIPS Workshop: Advances in Approximate Bayesian Inference – MONTREAL, CA | 2015 |
| 11. NIPS Workshop: Black Box Learning and Inference – MONTREAL, CA           | 2015 |
| 12. Massachusetts Institute of Technology – CAMBRIDGE, MA                    | 2015 |
| 13. Harvard University – CAMBRIDGE, MA                                       | 2015 |
| 14. Microsoft Research – CAMBRIDGE, MA                                       | 2015 |
| 15. University of Connecticut – STORRS, CT                                   | 2015 |
| 16. Max Planck Institute for Intelligent Systems – TÜBINGEN, DE              | 2015 |