

# Paramveer Dhillon

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## Current Position

MASSACHUSETTS INSTITUTE OF TECHNOLOGY, CAMBRIDGE, MA, U.S.A.  
Postdoctoral Researcher, Sloan School of Management.  
*Sponsor:* Professor Sinan Aral

## Education

UNIVERSITY OF PENNSYLVANIA, PHILADELPHIA, PA, U.S.A.  
M.S.E & PH.D. in Computer & Information Science.  
A.M in Statistics.

PUNJAB ENGINEERING COLLEGE, CHANDIGARH, INDIA.  
B.E (FIRST CLASS HONORS) in Electronics & Electrical Communications  
Engineering.

## Ph.D. Dissertation Title

ADVANCES IN SPECTRAL LEARNING WITH APPLICATIONS TO TEXT ANALYSIS  
& BRAIN IMAGING.  
(Winner of 2015 Morris & Dorothy Rubinoff Best Dissertation Award.)

## Grants & Awards

### GRANTS

2017-2020 \$300,000 Research Grant from Boston Globe Media LLC.  
ASSESSING THE ECONOMIC VALUE OF VARIOUS DIGITAL CONTENT STRATE-  
GIES.  
(co-PI with Sinan Aral)

## AWARDS

6. Runner-up overall best paper award at the Workshop on Information System & Economics (WISE) 2016.
5. Received the 2015 Morris & Dorothy Rubinoff Best Dissertation Award given by Penn Engineering.
4. Received the prestigious *Provost's Fellowship* to pursue graduate studies (Ph.D) at University of Southern California (USC).
3. Received Student Travel Award for presenting the paper at ICDM 2008, NIPS 2011, ICML 2012 & 2013 conferences.
2. College Color (a medal) for outstanding performance in extra-curricular activities in undergraduate studies.
1. Departmental Honors for outstanding performance in undergraduate studies.

## Publications

(Citations: 468, h-index: 10, i10-index: 11 (Google Scholar as of May 29, 2017))

Note 1: *JMLR (Impact Factor: 3.42) is the highest impact-factor Machine Learning journal.*

Note 2: *NeuroImage (Impact Factor: 6.36) is the highest impact-factor quantitative methods Brain Imaging journal.*

Note 3: *In Computer Science, the top conferences are very selective and many times are the terminal venue of publication i.e. no journal version.*

## WORKING PAPERS

2017

“Digital Paywall Design: Implications for Subscription Rates & Cross-Channel Demand”

(with Sinan Aral)

*Under Review @ Management Science (Runner-up overall best paper award @ WISE 2016.)*

Presentations:

1. NBER Summer Institute on Economics of IT and Digitization 2017 (Discussant: Matt Gentzkow).
2. WISE 2016 (Discussant: Miguel Godinho de Matos).

2017

“Influence Maximization Revisited.”

(with Sinan Aral)

*Finished (Soon to be submitted to PNAS)*

2017 “Unpacking Novelty: The Anatomy of Vision Advantages.”  
(with Sinan Aral)  
*Finished (Soon to be submitted to Organization Science)*

JOURNAL ARTICLES

2015 “Eigenwords: Spectral Word Embeddings.”  
(with Dean Foster & Lyle Ungar)  
*JMLR (Journal of Machine Learning Research 16).*

2014 “Subject-specific functional parcellation via Prior Based Eigenanatomy.”  
(with Lyle Ungar, Dave Wolk, Sandhitsu Das, James Gee & Brian Avants)  
*NeuroImage 99.*

2013 “A Risk Comparison of Ordinary Least Squares vs Ridge Regression.”  
(with Dean Foster, Sham Kakade & Lyle Ungar)  
*JMLR (Journal of Machine Learning Research 14).*

2011 “Minimum Description Length Penalization for Group and Multi-Task Sparse Learning.”  
(with Dean Foster & Lyle Ungar)  
*JMLR (Journal of Machine Learning Research 12).*

CONFERENCES (HIGHLY COMPETITIVE & HEAVILY PEER REVIEWED.)

2013 “New Subsampling Algorithms for Fast Least Squares Regression.”  
**Paramveer Dhillon**, Yichao Lu, Dean Foster & Lyle Ungar.  
*NIPS (Advances in Neural Information Processing Systems 26)* (Acceptance Rate: 25.4%)

2013 “Faster Ridge Regression via Subsampled Randomized Hadamard Transform.”  
Yichao Lu, **Paramveer Dhillon**, Dean Foster & Lyle Ungar.  
*NIPS (Advances in Neural Information Processing Systems 26)* (Acceptance Rate: 25.4%)

2012 “Two Step CCA: A new spectral method for estimating vector models of words.”  
**Paramveer Dhillon**, Jordan Rodu, Dean Foster & Lyle Ungar.  
*ICML (International Conference on Machine Learning)* (Acceptance Rate: 27.3%)

2012 “Spectral Dependency Parsing with Latent Variables.”  
**Paramveer Dhillon**, Jordan Rodu, Michael Collins, Dean Foster & Lyle Ungar.  
*EMNLP-CoNLL (Joint International Conference on Empirical Methods in Natural Language Processing and Conference on Natural Language Learning)* (Acceptance Rate: 25.0%)

- 2012 “Metric Learning for Graph-based Domain Adaptation.”  
**Paramveer Dhillon**, Partha Talukdar & Koby Crammer.  
*COLING (International Conference on Computational Linguistics)* (Acceptance Rate: 34.0%)
- 2012 “Deterministic Annealing for Semi-Supervised Structured Output Learning.”  
**Paramveer Dhillon**, Sathiya Keerthi, Olivier Chapelle, Kedar Bellare & S. Sundararajan.  
*AISTATS (International Conference on AI and Statistics)* (Acceptance Rate: 33.5%)
- 2011 “Multi View Learning of Word Embeddings via Canonical Correlation Analysis.”  
**Paramveer Dhillon**, Dean Foster & Lyle Ungar.  
*NIPS (Advances in Neural Information Processing Systems 24)* (Acceptance Rate: 21.8%)
- 2011 “Semi-supervised Multi-task Learning of Structured Prediction Models for Web Information Extraction.”  
**Paramveer Dhillon**, S. Sundararajan & Sathiya Keerthi.  
*CIKM (International Conference on Information and Knowledge Management)* (Acceptance Rate: 15.0%)
- 2010 “Feature Selection using Multiple Streams.”  
**Paramveer Dhillon**, Dean Foster & Lyle Ungar.  
*AISTATS (International Conference on AI and Statistics)* (Acceptance Rate: 40.6%)
- 2010 “Learning Better Data Representation using Inference-Driven Metric Learning (IDML).”  
**Paramveer Dhillon**, Partha Pratim Talukdar & Koby Crammer.  
*ACL (Association of Computational Linguistics)* (Acceptance Rate: 22.0%)
- 2009 “Transfer Learning, Feature Selection and Word Sense Disambiguation.”  
**Paramveer Dhillon** & Lyle Ungar.  
*ACL-IJCNLP (Association of Computational Linguistics)* (Acceptance Rate: 24.6%)
- 2009 “Multi-Task Feature Selection Using the Multiple Inclusion Criterion (MIC).”  
**Paramveer Dhillon**, Brian Tomasik, Dean Foster & Lyle Ungar.  
*ECML-PKDD (European Conference on Machine Learning)* (Acceptance Rate: 24.9%)
- 2008 “Efficient Feature Selection in the Presence of Multiple Feature Classes.”  
**Paramveer Dhillon**, Dean Foster & Lyle Ungar.  
*ICDM (IEEE- International Conference on Data Mining)* (Acceptance Rate: 19.9%)

# Teaching Interests

## SUBSTANTIVE

- 1). Digital Marketing.
- 2). Information Economics.
- 3). Social Network Analytics.

## METHODOLOGICAL

- 1). Causal Inference.
- 2). Digital Experimentation.
- 3). Text Mining.
- 4). Business Analytics.

# Teaching Experience

## CERTIFICATIONS

2015 Massachusetts Institute of Technology.  
Kaufman Teaching Certificate Program (KTCP).

2013 University of Pennsylvania.  
Center for Teaching and Learning (CTL) Teaching Excellence Certificate.

## GUEST LECTURES

2015, 2016 Massachusetts Institute of Technology.  
Course: Analytics Lab (MBA Course).  
*Instructors: Profs. Erik Brynjolfsson and Sinan Aral.*

2013 University of Pennsylvania.  
Course: Machine Learning (Graduate Course).  
*Instructor: Prof. Lyle Ungar.*

## TEACHING ASSISTANCE

University of Pennsylvania.  
Course: Introduction to Machine Learning (Graduate Course).  
*Instructor: Prof. Ben Taskar.*  
Course: Introduction to Algorithms (Undergraduate Course).  
*Instructor: Prof. Sanjeev Khanna.*  
Course: Computer Systems II (Graduate Course).  
*Instructor: Diana Palsetia.*  
Course: Computer Systems I (Graduate Course).  
*Instructor: Diana Palsetia.*

## Presentations

### Invited Talks (Excluding conference presentations.)

4. (3/2017) Harvard University (Institute of Quantitative Social Science- IQSS Seminar)
3. (1/2017) Harvard University (Econ-CS Seminar)
2. (5/2015) MIT (Computer Science & Artificial Intelligence Laboratory- CSAIL Seminar)
1. (11/2011) Temple University (Computer Science Seminar)

### Conference Presentations (Last 5 years only).

#### “Digital Paywall Design”

*NBER Summer Institute on Economics of IT and Digitization 2017, Workshop on Information Systems & Economics (WISE) 2016, Winter Conference on Business Intelligence (WCBI) 2016, Conference on Digital Experimentation (CODE) 2015,*

#### “Linear Methods for Big Data.”

*Microsoft Research NYC 2014, NIPS 2011, ICML 2012.*

#### “Influence Maximization Revisited.”

*Workshop on Information in Networks (WIN) Conference 2015, INFORMS 2015 (Session on Social Analytics), Conference on Inference Transmission in Networks 2015.*

#### “Only Recency Based Customer Lifetime Value (CLV) Estimation.”

*Marketing Science Conference 2015.*

#### “Subsampling Algorithms for Fast Least Squares Regression.”

*Microsoft Research NYC 2014, NIPS 2013.*

## Service to the profession

### Independent (Primary) Reviewer.

*Journals: Marketing Science, Management Science, JMLR, JAIR, IEEE-TPAMI, IEEE-TKDE, Machine Learning Journal.*

*Conferences: NIPS, ICML, AAAI, AISTATS.*

*Co-organizer Workshop on Vector Space Models in NLP at NAACL 2015.*

*(with Percy Liang (Stanford), Phil Blunsom (Oxford) & Shay Cohen (Edinburgh))*

Last updated: May 29, 2017