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Paramveer Dhillon

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Current Position

8/14- Massachusetts Institute of Technology, Cambridge, MA, U.S.A.
Postdoctoral Researcher, Sloan School of Management.
Sponsor: Professor Sinan Aral

Education

9/10-7/14 University of Pennsylvania, Philadelphia, PA, U.S.A.
A.M. in Statistics; M.S.E. & Ph.D. in Computer & Information Science.
Advisors: Professors Lyle Ungar, Dean Foster, & James Gee

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

2017-2020 $300,000 *Research Grant* from Boston Globe Media LLC.
Assessing the Economic Value of various Digital Content Pricing Strategies via Randomized Experimentation.
(co-PI with Sinan Aral)

Research & Teaching Interests

Substantive

1). Business Analytics; 2). Economics of Digitization; 3). Social Network Analytics.

Methodological

1). Digital Experimentation; 2). Text Mining/Natural Language Processing; 3). Machine Learning.

Publications

(Citations: 524, h-index: 11, i10-index: 11 (Google Scholar as of November 13, 2017))

Note 1: *JMLR (Impact Factor: 3.42) is the highest impact-factor Machine Learning journal & NeuroImage (Impact Factor: 6.36) is the highest impact-factor quantitative methods Brain Imaging journal.*
Note 2: *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 "Influence Maximization Revisited."
(with Sinan Aral)
Revision Requested @ Nature: Human Behavior

2017 "Digital Paywall Design: Implications for Subscription Rates & Cross-Channel Demand." *(Finished)*
(with Sinan Aral)
(Runner-up best paper award @ WISE 2016.)
Presentations:

1. NBER Summer Institute on Economics of IT and Digitization 2017
   (Discussant: Matt Gentzkow (Stanford)).

2017 "Modeling Preference Dynamics: A Neural Probabilistic Approach." *(Finished)*
(with Sinan Aral)

2017 "Unpacking Novelty: The Anatomy of Vision Advantages." *(Finished)*
(with Sinan Aral)

2017 "Only Recency Based Customer Lifetime Value (CLV) Estimation."
(with Peter Fader)

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 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 Experience

Certifications

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

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

Guest Lectures

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

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

Teaching Assistance
University of Pennsylvania.
Courses: Introduction to Machine Learning (Prof. Ben Taskar); Introduction to Algorithms (Prof. Sanjeev Khanna); Computer Systems I, II (Diana Palsetia)

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."
Harvard University (IQSS) 2017, Harvard University (EconCS) 2017, MIT (CSAIL) 2015, Microsoft Research NYC 2014, ICML 2012, NIPS 2011

"Influence Maximization Revisited."
Harvard University (EconCS) 2017, 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, ICLR.*

Co-organizer *Workshop on Vector Space Models in NLP at NAACL 2015.*
(with Percy Liang (Stanford), Phil Blunsom (Oxford) & Shay Cohen (Edinburgh))

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.

Coursework (Non Computer Science Courses).

University of Pennsylvania.
Econometrics 1. (*Schorfheide & Cheng*)
Econometrics 2. (*Diebold*)
Applied Econometrics 1. (*Shaman*)
Applied Econometrics 2. (*Shaman*)
Observational Studies. (*Small*)
Mathematical Statistics. (*Small*)
Bayesian Methods & Computation. (*Jensen*)
Linear Statistical Models. (*Brown*)
Empirical Models in Marketing. (*Bradlow*)
Measurement & Data Analysis in Marketing. (*Van den Bulte*)
Applied Probability Models in Marketing. (*Fader*)

Massachusetts Institute of Technology (Audits)
Applied Network Theory and Analysis. (*Aral*)
Applications of Operations Research in Social Networks. (*Perakis & Zaman*)
Identity and Action. (*Zuckerman*)
Economics of IT and Digitization. (*Brynjolfsson & Van Alstyne*)
Experimental Design. (*Eckles*)

Harvard University (Audits)
Empirical Studies of Innovation. (*Greenstein & Lakhani*)
Machine Learning in Econometrics: Prediction, Estimation & Big Data. (*Mullainathan*)

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