

DHIVYA ESWARAN

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EDUCATION

- **PhD** in Computer Science *August 2015 - May 2020*
Carnegie Mellon University, Pittsburgh, USA
Advisor: Prof. Christos Faloutsos
Research: Graph and Time-Series Mining, Anomaly Detection, Semi-Supervised Learning, Machine Learning
- **BTech (with Honors)** in Computer Science and Engineering *August 2011 - May 2015*
Indian Institute of Technology Madras, Chennai, India
CGPA: 9.77/10
Advisor: Prof. Sutanu Chakraborti
Thesis: Leveraging Structure to Improve Concept Networks and Concept Lattices

POSITIONS

- **Amazon Search**, Palo Alto, USA *May 2020 - present*
Applied Scientist II
I help innovate, develop, evaluate, and launch deep-learned models to fuel next-generation Amazon Search, with a focus on improving search quality in new and emerging locales. Given a customer query, these models can shortlist thousands of matching products from a multi-million catalog within tens of milliseconds.
- **Microsoft Research**, Redmond, USA *May 2019 - August 2019*
Research Intern, Information and Data Sciences Group. Mentors: Paul Bennett, Shamsi Iqbal, Adam Fourney
Research: Prediction on personal corpora
- **Amazon**, Palo Alto, USA *May 2018 - August 2018*
Research Intern, AWS Artificial Intelligence Lab. Mentors: Nina Mishra, Yonatan Naamad
Research: Early warning of abnormal health conditions
- **Amazon**, Palo Alto, USA *May 2017 - August 2017*
Research Intern, Core Machine Learning. Mentors: Nina Mishra, Sudipto Guha
Research: Anomaly detection in streaming graphs
- **Facebook**, Menlo Park, USA *May 2016 - August 2016*
Research Intern, Core Data Science. Mentors: Smriti Bhagat, Stanislav Funiak, Aude Hoefflner
Research: Matching graphs with nodal attributes
- **Toyota Technological Institute**, Chicago, USA *May 2015 - August 2015*
Research Intern, CS Department. Mentors: Mohit Bansal, Kevin Gimpel, Karen Livescu
Research: Learning word embeddings from multiple languages
- **Microsoft Research**, Redmond, USA *May 2014 - August 2014*
Research Intern, Contextual Learning, User Experience and Search. Mentor: Paul Bennett
Research: Webpage classification using website topical cohesion

AWARDS & DISTINCTIONS

11. Invited to Microsoft Research AI Breakthroughs Workshop, 2019
10. Snap Graduate Research Fellowship, 2019
9. Symantec Graduate Research Fellowship Finalist, 2019
8. ECML-PKDD Best Student Data Mining Paper (Runner-Up), 2018

7. Travel awards: IEEE ICDM 2018, ACM SIGKDD 2018, CRA-Women Graduate Student Cohort 2016, Xerox Research Center India Open 2014
6. O.P. Jindal Engineering and Management Scholarship, 2011 & 2012
5. Aditya-Birla Scholarship Finalist, 2011 (one of 25 candidates across India)
4. All India Rank 96 in IIT-Joint Entrance Examination, 2011
3. All India Rank 24 in All India Engineering Entrance Examination, 2011
2. Kishore Vaigyanik Protsahan Yojana Scholarship, 2011
1. Tamil Nadu State Rank 2, Regional Mathematics Olympiad, 2010

PUBLICATIONS

Refereed Conference Publications

13. **Dhivya Eswaran**, Srijan Kumar, Christos Faloutsos. *Higher-Order Label Homogeneity and Spreading in Graphs*, The WebConf 2020.
12. **Dhivya Eswaran**, Christos Faloutsos, Nina Mishra, Yonatan Naamad. *Intervention-Aware Early Warning*, ICDM 2019.
11. **Dhivya Eswaran**, Christos Faloutsos. *SedanSpot: Detecting Anomalies in Edge Streams*, ICDM 2018.
10. Bryan Hooi, Leman Akoglu, **Dhivya Eswaran**, Amritanshu Pandey, Marko Jereminov, Larry Pileggi, Christos Faloutsos. *ChangeDAR: Online Localized Change Detection for Sensor Data on a Graph*, CIKM 2018.
9. **Dhivya Eswaran**, Reihaneh Rabbany, Artur Dubrawski, Christos Faloutsos. *Social-Affiliation Graphs: Patterns and the SOAR Model*, ECML-PKDD 2018.
8. Bryan Hooi, **Dhivya Eswaran**, Hyun Ah Song, Amritanshu Pandey, Marko Jereminov, Larry Pileggi, Christos Faloutsos. *GridWatch: Sensor Placement and Anomaly Detection in the Electrical Grid*, ECML-PKDD 2018.
Best Student Data Mining Paper (Runner-Up)
7. Nikhil Gupta, **Dhivya Eswaran**, Neil Shah, Leman Akoglu, Christos Faloutsos. *Beyond Anomaly Detection: LookOut for Pictorial Explanation*, ECML-PKDD 2018.
6. **Dhivya Eswaran**, Christos Faloutsos, Sudipto Guha, Nina Mishra. *SpotLight: Detecting Anomalies in Streaming Graphs*, KDD 2018.
5. Reihaneh Rabbany, **Dhivya Eswaran**, Christos Faloutsos, Artur Dubrawski. *Beyond Assortativity: Proclivity Index for Attributed Networks*, PAKDD 2017.
4. **Dhivya Eswaran**, Stephan Günnemann, Christos Faloutsos, Disha Makhija, Mohit Kumar. *ZooBP: Belief Propagation for Heterogeneous Networks*, VLDB 2017.
3. Kijung Shin, Euiwoong Lee, **Dhivya Eswaran**, Ariel D. Procaccia. *Why You Should Charge Your Friends for Borrowing Your Stuff*, IJCAI 2017.
2. **Dhivya Eswaran**, Stephan Günnemann, Christos Faloutsos. *The Power of Certainty: A Dirichlet-Multinomial Model for Belief Propagation*, SDM 2017.
1. **Dhivya Eswaran**, Paul Bennett, Joseph Pfeiffer III. *Modeling Website Topic Cohesion at Scale to Improve Webpage Classification*, SIGIR 2015.

Refereed Workshop Publications

2. Nikhil Gupta, **Dhivya Eswaran**, Neil Shah, Leman Akoglu, Christos Faloutsos. *Beyond Anomaly Detection: LookOut for Pictorial Explanation*, KDD 2018 (ODD workshop).
1. Ditty Mathew, **Dhivya Eswaran**, Sutanu Chakraborti. *Creating Pedagogical Views from an Encyclopedic Resource*, NAACL 2015 (BEA10 workshop).

GRADUATE-LEVEL COURSEWORK

At Carnegie Mellon University

- *The ABCDE of Statistical Methods in Machine Learning* with Prof. Aaditya Ramdas (ongoing)
- *Information Theory* with Prof. Pulkit Grover (ongoing)

- *Causal Discovery, Statistics, and Machine Learning* with Prof. Peter Spirtes (*ongoing*)
- *Intermediate Statistics* with Prof. Larry Wasserman
- *Algorithms in the Real World* with Prof. Anupam Gupta and Prof. Guy Blelloch
- *Multimedia Databases and Data Mining* with Prof. Christos Faloutsos
- *Graduate Artificial Intelligence* with Prof. Tuomas Sandholm and Prof. Zico Kolter
- *Spectral Graph Theory* with Prof. Gary Miller
- *Programming Language Semantics* with Prof. Stephen Brookes

At Indian Institute of Technology Madras

- *Data Mining* with Prof. Balaraman Ravindran and Prof. Sayan Ranu
- *Introduction to Machine Learning* with Prof. Balaraman Ravindran
- *Social Network Analysis* with Prof. Balaraman Ravindran
- *Reinforcement Learning* with Prof. Balaraman Ravindran
- *Topics in Design and Analysis of Algorithms* with Prof. Pandu Rangan
- *Geometry and Photometry-based Computer Vision* with Prof. Anurag Mittal
- *Digital Video Processing* with Prof. Anurag Mittal
- *Natural Language Processing* with Prof. Sutanu Chakraborti
- *Memory-based Reasoning in Artificial Intelligence* with Prof. Sutanu Chakraborti
- *Optimization Methods in Signal Processing and Communication* with Prof. Krishna Jagannathan

ACTIVITIES

Academic Service & Mentorship

- Reviewer for Data Mining and Knowledge Discovery: 2021
- Reviewer for The Web Conference (formerly, International World Wide Web Conference): 2020, 2021
- Reviewer for ACM Transactions on Knowledge Discovery from Data: 2020
- Reviewer for ACM Computing Surveys: 2020
- Reviewer for International Workshop on Mining and Learning with Graphs (co-located with ACM SIGKDD International Conference on Knowledge Discovery & Data Mining): 2020
- Reviewer for International AAAI Conference on Web and Social Media: 2020
- Reviewer for Journal of Machine Learning Research: 2018, 2019, 2020
- Reviewer for Misinformation and Misbehavior Mining on the Web Workshop (co-located with ACM International Conference on Web Search and Data Mining): 2018
- Member of Speakers' Club at Carnegie Mellon University (2017-20)
- Masters Project Mentor for Nitin Chandra Badam (CS MS student at CMU 2016-17)
- Masters Project Mentor for Soumya Wadhwa (CS MS student at CMU 2017-18)
- Mentor for IIT aspirants as part of the Avanti Fellows program (2014-15)

Teaching

- Teaching assistant for *Algorithms for Big Data*, by Prof. David Woodruff, in spring 2017
- Teaching assistant for *Practical Data Science*, by Prof. Zico Kolter, in fall 2016

Funding

- Contributed towards Flipkart faculty grant (\$25,000) with Bryan Hooi, Neil Shah and Christos Faloutsos

Invited Talks

- MIDAS Consortium, University of Michigan, November 2019
- Chinese Academy of Sciences, November 2019, hosted by Shenghua Liu
- CyLab Partners Conference, September 2017 and September 2019
- Technical University of Munich, September 2017, hosted by Stephan Günnemann

Others

- Vice-President, Indian Graduate Student Association at CMU, 2016-17

- Cultural Chair, Indian Graduate Student Association at CMU, 2015-16
- Co-ordinator of technical fests (Shaastra, Exebit) at Indian Institute of Technology Madras, 2012-14