Jennifer G. Dy

Professor
Department of Electrical and Computer Engineering
Director of AI Faculty, Institute for Experiential AI
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RESEARCH INTERESTS

Machine learning, probabilistic modeling, interpretable models, and their application to biomedical image analysis, health, science and engineering.

EDUCATION

Ph.D. in Electrical and Computer Engineering, 2001, Purdue University, West Lafayette, IN
Machine Learning and Robot Vision Laboratories. Supported by NIH.
Thesis: *Feature Selection for Unsupervised Learning Applied to Content-Based Image Retrieval*.
Advisors: Carla Brodley and Avi Kak

Master of Science in Electrical and Computer Engineering, 1997, Purdue University
Electronic Imaging Systems Laboratory. Supported by Hewlett-Packard.
Project: *Bitmap Resolution Synthesis*. Supervisor: Jan Allebach

B.S. in Electrical Engineering, 1993, *Magna Cum Laude, Ranked First in Major*
University of the Philippines, Quezon City, Philippines

APPOINTMENTS

2015-present	Professor, Northeastern University, Boston, MA
2008-2015	Associate Professor, Northeastern University, Boston, MA
2009 Fall	Sabbatical Visit, University of California, Berkeley (Michael Jordan)
2002-2008	Assistant Professor, Northeastern University, Boston, MA
1996-2000	Research Assistant, Purdue University, West Lafayette, IN
1993-1995	Instructor, University of the Philippines

HONORS, AWARDS, AND SCHOLARSHIPS

NSF CAREER Award (2004)
B.S. Magna Cum Laude (1994)
Most Outstanding All-Around Graduating Student of the College of Eng. (1994)
Best Undergraduate Research Project of the College of Engineering (1994)
BPI Philippines National Science Award (1994)
University of the Philippines Presidential Scholarship, tuition scholarship (1991-1993)
Gerry Roxas Foundation Scholarship, tuition scholarship (1989-1990)
"Students Speak" Teaching Award (2011)
US Frontiers of Engineering Participant (2013, National Academy of Engineering)
Soren Buus Research Award, College of Engineering, Northeastern University (2016)
Excellence in Research and Creative Activity, Northeastern University (2017)

SUMMARY OF ACHIEVEMENTS

NSF CAREER Award, 2004
22 Ph.D. and 12 M.S. students graduated. 9 Ph.D. students in progress.
100+ publications from journals and highly selective conferences.
h-index: 51; i10-index: 148.
Associate Editor, *JMLR, PAMI, MLJ, DAMI*; Editorial Board Member, *JMLR, MLJ*
Program Chair, AISTATS 2023, ICML 2018, SDM 2013; Associate Program Chair, AAAI 2022
Secretary, International Machine Learning Society, 2016-
Organizing Chair or Senior/Program Committee Member for several conferences,
including *ICML, NeurIPS, KDD, AAAI, IJCAI, AISTATS, UAI, SDM, ICLR*.

PROFESSIONAL ACTIVITIES

Secretary,

- *International Machine Learning Society (2016-present)*

Associate (Action) Editor,

- *IEEE Transactions on Pattern Analysis and Machine Intelligence (2018-2019)*
- *Journal of Machine Learning Research (2016-2019)*
- *Machine Learning (2007-2013)*
- *Data Mining and Knowledge Discovery (2009-2011)*

Editorial Board Member,

- *Journal of Machine Learning Research (2009-2016)*
- *Machine Learning (2004-2007, 2014)*

Guest Editor,

- *Special Issue on MultiClust, Machine Learning (2013)*
- *Special Issue of Selected Papers of SDM 2013, ASA Statistical Analysis and Data Mining (2013)*

Program Chair,

- *National Conference on Artificial Intelligence (AAAI 2024)*
- *International Conference on Artificial Intelligence and Statistics (AISTATS 2023)*
- *International Conference on Machine Learning (ICML 2018)*
- *SIAM International Conference on Data Mining (SDM 2013)*
- *1st Workshop on Discovering, Summarizing and Using Multiple Clustering (MultiClust) at the International Conference on Knowledge Discovery and Databases (2010)*
- *International Workshop on Climate Informatics (2015)*

Associate Program Chair,

- *National Conference on Artificial Intelligence (AAAI 2022)*

Workshop General Chair,

- *International Workshop on Climate Informatics (2016)*

Workshop Organizer,

- *Workshop on Opportunities between AI and Visualization (2022)*

Session Chair,

- *Engineering in the Context of Big Data Session, Indo-American Frontiers of Engineering Symposium, National Academy of Engineering (2014)*

Student Scholarships Chair,

- *SIAM International Conference on Data Mining (2012)*
- *International Conference on Machine Learning (2010)*

Student Awards Chair, *ACM SIGKDD Conf. on Knowledge Discovery & Data Mining (2012)*

Workshops Chair, *ACM SIGKDD Conf. on Knowledge Discovery & Data Mining (2011)*

Exhibits and Demos Chair, *ACM SIGKDD Conference on Knowledge Discovery and Data Mining (2010)*

Tutorials Chair, *SIAM International Conference on Data Mining (2010)*

Publications Chair, *International Conference on Machine Learning (2004)*

Senior Area Chair,

- *International Conference on Machine Learning (2019, 2020)*
- *International Joint Conference on Artificial Intelligence (2020, 2021)*
- *Neural Information Processing Systems (2020-2022)*
- *National Conference on Artificial Intelligence (2021)*

Area Chair,

- *International Conference on Learning Representations (2021)*
- *International Conference on Machine Learning (2021)*

Senior Program Committee Member,

- *International Conference on Machine Learning (2007, 2017)*
- *Neural Information Processing Systems (2017)*
- *National Conference on Artificial Intelligence (2013, 2015, 2016, 2017, 2018)*
- *Uncertainty in Artificial Intelligence (2015, 2016, 2017)*
- *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (2016)*
- *International Joint Conference on Artificial Intelligence (2011)*
- *SIAM International Conference on Data Mining (2009)*

Program Committee Member,

- *ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (2001, 2003, 2005, 2006, 2007, and 2008),*
- *Int'l Conference on Machine Learning (2005, 2006, 2008-2012, 2015-2016),*
- *National Conference on Artificial Intelligence (AAAI 2005, 2007, 2008, 2014),*
- *International Joint Conference on Artificial Intelligence (2009, 2011),*
- *Uncertainty in Artificial Intelligence (2013, 2014),*
- *Int'l Conference on Artificial Intelligence and Statistics (2016),*
- *European Conference on Machine Learning (2009),*
- *SIAM International Conference on Data Mining (2004),*
- *SIAM Data Mining (SDM) Workshop on Feature Selection (2005),*
- *SIAM Data Mining (SDM) Workshop on Clustering High-Dimensional Data (2005).*

Reviewer,

Machine Learning,
Journal of Machine Learning Research,
Journal of Artificial Intelligence Research,
IEEE Transactions on Pattern Analysis and Machine Intelligence,
Neural Information Processing Systems (2008, 2011, 2012, 2013, 2014, 2015, 2016),
Pattern Recognition Letters,
Knowledge and Information Systems,
Bioinformatics,
Encyclopedia of Computer Science and Engineering,
Data Mining and Knowledge Discovery,
Information Fusion
IEEE Transactions on Geoscience and Remote Sensing
National Science Foundation (2003, 2004, 2005, 2008, 2010, 2012, 2014, 2015)

External Reviewer,

International Conference on Machine Learning,
IEEE Conference on Computer Vision and Pattern Recognition,
IEEE Workshop of Content-Based Access of Image and Video Databases

Member, IEEE, ACM, AAAI

Advisory Board,

- First Advisory Council for the RIKEN Center for Advanced Intelligence Project (AIP), 2019
- Second Advisory Council for the RIKEN Center for Advanced Intelligence Project (AIP), 2023

PATENTS

Micha Moffie, David Kaeli, Aviram Cohen, Javed Aslam, Malak Alshawabkeh, Jennifer Dy, Fatemeh Azmandian, "VMM-based intrusion detection system," **US 8,719,936 B2,** May 6, 2014.

G. Fung, R. E. Rosales, J. G. Dy, and Y. Yan, "Automatic Labeler Assignment Using a Model Built from Multi-Labeler Data," Patent No. **US 8,027,939 B2**, Sept. 27, 2011.

Sindhu Ghanta, Ralf Birken, Jennifer Dy, "Software application for the automated detection, quantification, and classification of crack types from pavement images," INV# 15057, Jan. 12, 2015. (Invention Disclosure)

BOOK CHAPTERS

J. G. Dy, "Feature Selection (Unsupervised Learning)," **Encyclopedia of the Sciences of Learning**, Springer, 2012.

J. G. Dy, "Unsupervised Feature Selection," invited book chapter in **Computational Methods of Feature Selection**, edited by Huan Liu and Hiroshi Motoda, *Chapman and Hall/CRC Press*, 2007.

JOURNAL PUBLICATIONS

1. Yumin Liu, Kate Duffy, Jennifer G. Dy, Auroop R. Ganguly, *"Explainable deep learning for insights in El Nino and river flows*," **Nature Communications**, **14**, Article number: 339, published January 20, 2023, https://doi.org/10.1038/s41467-023-35968-5

2. Hongfu Liu, Junxiang Chen, Jennifer G. Dy, Yun Fu, *"Transforming Complex Problems into K-Means Solutions,"* **IEEE Transactions on Pattern Analysis and Machine Intelligence**, Vol. 45, No. 7, pages 9149-9168, 2023.

3. Andrey Gritsenko, Kimia Shayestehfard, Yuan Guo, Armin Moharrer, Jennifer G. Dy, Stratis Ioannidis, *"Graph Transfer Learning,"* **Knowledge Information Systems**, Vol. 65, No. 4, pages 1627-1656, 2023.

4. Tingting Zhao, Zifeng Wang, Aria Masoomi, Jennifer G. Dy, *"Deep Bayesian Unsupervised Lifelong Learning,"* **Neural Networks**, Vol. 149, pages 95-106, 2022.

5. Zulqarnain Khan, Yiyu Wang, Eli Sennesh, Jennifer G. Dy, Sarah Ostadabbas, Jan-Willem van de Meent, J. Benjamin Hutchinson, Ajay B. Satpute, *"A Computational Neural Model for Mapping Degenerate Neural Architectures,"* **Neuroinformatics**, Vol. 20, No. 4, pages 965-979, 2022.

6. Berkan Kadioglu, Peng Tian, Jennifer G. Dy, Deniz Erdogmus, Stratis Ioannidis, *"Sample Complexity of Rank Regression using Pairwise Comparisons,"* **Pattern Recognition**, Vol. 130, pages 108688, 2022.

7. Ilkay Yildiz, Jennifer G. Dy, Deniz Erdogmus, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Stratis Ioannidis, *"Spectral Ranking Regression,"* **ACM Transactions on Knowledge Discovery from Data**, Vol. 16, No. 6, pages 120:1-120:38, 2022.

8. Tong Jian, Yifan Gong, Zheng Zhan, Runbin Shi, Nasim Soltani, Zifeng Wang, Jennifer G. Dy, Kaushik R. Chowdhury, Yanzhi Wang, Stratis Ioannidis, *"Radio Frequency Fingerprinting on the Edge,"* **IEEE Transactions on Mobile Computing**, Vol. 21, No. 11, pages 4078-4093, 2022.

9. Batool Salehi, Guillem Reus Muns, Debashri Roy, Zifeng Wang, Tong Jian, Jennifer G. Dy, Stratis Ioannidis, Kaushik R. Chowdhury, *"Deep Learning on Multimodal Sensor Data at the Wireless Edge for Vehicular Network,"* **IEEE Transactions on Vehicular Technology**, Vol. 71, No. 7, pages 7639-7655, 2022.

10. Byers C, Gill M, Kurtansky NR, Alessi-Fox C, Harman M, Cordova M, Gonzalez S, Guitera P, Rotemberg V, Marghoob A, Chen CJ, Dy J, Kose K, Rajadhyaksha M, Sahu A, *"Tertiary lymphoid structures accompanied by fibrillary matrix morphology impact anti-tumor immunity in basal cell carcinomas*," **Frontiers in Medicine** (Lausanne). 2022 Oct 27; 9:981074. doi:10.3389/fmed.2022.981074. PMID: 36388913; PMCID: PMC9647637.

11. Adel Boueiz, Zhonghui Xu, Yale Chang, Aria Masoomi, Andrew Gregory, Sharon M. Lutz, Dandi Qiao, James D. Crapo, Jennifer G. Dy, Edwin K. Silverman, Peter J. Castaldi, for the COPDGene Investigators, *"Machine learning prediction of progression in forced expiratory volume in 1 second in the COPDGene® study."* **Chronic Obstructive Pulmonary Disease**, Vol. 9, No. 3, pages 349-365, 2022. doi: http://doi.org/10.15326/jcopdf.2021.0275.

12. Zifeng Wang, Aria Masoomi, Zhonghui Xu, Adel Boueiz, Sool Lee, Tingting Zhao, Russell Bowler, Michael Cho, Edwin K. Silverman, Craig Hersh, Jennifer Dy, Peter Castaldi, *"Improved prediction of smoking status via isoform-aware RNA-seq deep learning models,"* PLOS Computational Biology, Vol. 17, Month 10, pages 1-19, 2021. https://doi.org/10.1371/journal.pcbi.1009433

13. Kivanç Köse, Alican Bozkurt, Christi Alessi-Fox, Melissa Gill, Caterina Longo, Giovanni Pellacani, Jennifer G. Dy, Dana H. Brooks, Milind Rajadhyaksha, *"Segmentation of cellular patterns in confocal images of melanocytic lesions in vivo via a multiscale encoder-decoder network (MED-Net),"* **Medical Image Analysis**, Vol. 67, pages 101841, 2021.

14. Katie Hoemann, Zulqarnain Khan, Catie Nielson, Madeleine Devlin, Jennifer Dy, Lisa Feldman Barrett, Karen S. Quigley, *"Context-aware experience sampling reveals the scale of variation in affective experience,"* **Scientific Reports***,* **11,** 2718 (2021). https://doi.org/10.1038/s41598-021-82415-w

15. Nasim Soltani, Kunal Sankhe, Jennifer G. Dy, Stratis Ioannidis, Kaushik R. Chowdhury, *"More Is Better: Data Augmentation for Channel-Resilient RF Fingerprinting,"* **IEEE Communications Magazine**, 58(10): 66-72, 2020.

16. Tong Jian, Bruno Costa Rendon, Emmanuel Ojuba, Nasim Soltani, Zifeng Wang, Kunal Sankhe, Andrey Gritsenko, Jennifer G. Dy, Kaushik R. Chowdhury, Stratis Ioannidis, *"Deep Learning for RF Fingerprinting: A Massive Experimental Study,"* **IEEE Internet Things Magazine**, 3(1): 50-57, 2020.

17. Nasim Soltani, Guillem Reus Muns, Batool Salehi, Jennifer G. Dy, Stratis Ioannidis, Kaushik R. Chowdhury, *"RF Fingerprinting Unmanned Aerial Vehicles With Non-Standard Transmitter Waveforms,"* **IEEE Transactions on Vehicular Technology**, 69(12): 15518-15531, 2020.

18. Yijun Zhao, Bryan Lackaye, Jennifer G. Dy, Carla E. Brodley, *"A Quantitative Machine Learning Approach to Master Students Admission for Professional Institutions,"* **Proceedings of the 13th International Conference on Educational Data Mining (EDM)**, 2020.

19. Setareh Ariafar, Jaume Coll-Font, Dana H. Brooks, Jennifer G. Dy, *"ADMMBO: Bayesian Optimization with Unknown Constraints using ADMM,"* **Journal of Machine Learning Research**, Vol. 20, Issue 123, pp. 1-26, 2019.

20. Ilkay Yildiz, Peng Tian, Jennifer G. Dy, Deniz Erdogmus, James M. Brown, Jayashree Kalpathy-Cramer, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Stratis Ioannidis, *"Classification and Comparison via Neural Networks,"* **Neural Networks**, Vol. 118, pp. 65-80, 2019.

21. J. Sourati, A. Gholipour, J. G. Dy, X. Tomas-Fernandez, S. Kurugol, S. K. Warfield, *"Intelligent Labeling Based on Fisher Information for Medical Image Segmentation Using Deep Learning,"* **IEEE Transactions on Medical Imaging**, Vol. 38, No. 11, pp. 2642-2653, 2019.

22. K. Kose, A. Bozkurt, C. Alessi-Fox, D. H. Brooks, J. G. Dy, M. Rajadhyaksha, M. Gill, *"Utilizing Machine Learning for Quality Assessment for Reflectance Confocal Microscopy,"* **Journal of Investigative Dermatology**, 2019.

23. J. B. Wormwood, Z. Khan, E. Siegel, S. K. Lynn, J. Dy, L. Feldman Barrett, K. S. Quigley, *"Physiological Indices of Challenge and Threat: A Data-Driven Investigation of Autonomic Nervous System Reactivity During an Active Coping Stressor Task,"* **Psychophysiology**, August 13, 2019. https://doi.org/10.1111/psyp.13454.

24. P. J. Castaldi, A. Boueiz, J. Yun, R. S. J. Estepar, J. C. Ross, G. Washko, M. H. Cho, C. P. Hersh, G. L. Kinney, K. A. Young, E. A. Regan, D. A. Lynch, G. J. Criner, J. G. Dy, S. I. Rennard, R. Casaburi, B. J. Make, J. Crapo, E. K. Silverman, J. E. Hokanson, and COPDGene Investigators, *"Machine Learning Characterization of COPD Subtypes: Insights from the COPDGene Study,"* **CHEST**, Vol. 157, No. 5, pp. 1147-1157, Elsevier, May, 2020. DOI: https://doi.org/10.1016/j.chest.2019.11.039.

25. J. Chen, M. Cho, E. K. Silverman, J. E. Hokanson, G. L. Kinney, J. D. Crapo, S. Rennard, J. Dy, P. Castaldi, "Turning subtypes into disease axes to improve prediction of COPD progression," **Thorax**, Vol. 74, No. 9, pp. 906-909, 2019. DOI: 10.1136/thoraxjnl-2018-213005.

26. K. E. Lowe, …, J. G. Dy, …, E.K. Silverman, J. D. Crapo, "COPDGene 2019: Redefining the Diagnosis of Chronic Obstructive Pulmonary Disease," **Chronic Obstructive Pulmonary Diseases: Journal of the COPD Foundation (JCOPDF)**, Vol. 6, No. 5, pp. 384-399, November, 2019. DOI: 10.15326/jcopdf.6.5.2019.0149.

27. L. F. Barrett, Z. Khan, J. Dy, D. Brooks, *"Nature of Emotion Categories: Comment on Cowen and Keltner,"* **Trends in Cognitive Sciences**, Vol. 22, Issue 2, pp. 97-99, February, 2018. DOI: https://doi.org/10.1016/j.tics.2017.12.004.

28. J. D. Ross, P. J. Castaldi, M. H. Cho, C. P. Hersh, F. N. Rahaghi, G. V. Sanchez-Ferrero, M. M. Parker, A. A. Litonjua, D. Sparrow, J. G. Dy, E. K. Silverman, "Longitudinal Modeling of Lung Function Trajectories in Smokers with and without Chronic Obstructive Pulmonary Disease, " **American Journal of Respiratory and Critical Care Medicine**, Vol. 198, Issue 8, 2018. https://doi.org/10.1164/rccm.201707-1405OC

29. E. H. Siegel, M. K. Sands, W. Van den Noortgate, P. Condon, Y. Chang, J. Dy, K. S. Quigley, L. F. Barrett, *"Emotion Fingerprints or Emotion Populations? A Meta-Analytic Investigation of Autonomic Features of Emotion Categories,"* **Pyschology Bulletin**, February, 2018. DOI: 10.1037/bul0000128.

30. J. Sourati, M. Akcakaya, T. K. Leen, D. Erdogmus, J. G. Dy, *"A Probabilistic Active Learning Algorithm based on Fisher Information Ratio,"* **IEEE Transactions on Pattern Analysis and Machine Intelligence**, 40(8): 2023-2029, 2018.

31. K. Kose, M. Gou, O. Yelamos, M. Cordova, A. Rossi, E. Flores, K. Nehal, O. Camps, J. Dy, D. Brooks, M. Rajadhyaksha, *"Automated Video-Mosaicking Approach for Confocal Microscopic Imaging In-Vivo: An Approach to Address Challenges in Imaging Living Tissue and Extend Field-of-View,"* **Scientific Reports**, 7: 10759, 2017. (doi:10.1038/s41598-017-11072-9)

32. A. Ding, J. Dy, Y. Li, Y. Chang, *"A Robust-Equitable Measure for Feature Ranking and Selection,"* **Journal of Machine Learning Research**, 18(71):1-46, 2017.

33. J. Sourati, M. Akcakaya, T. K. Leen, D. Erdogmus, J. G. Dy, *"Asymptotic Analysis of Objectives Based on Fisher Information in Active Learning,"* **Journal of Machine Learning Research**, 18(34): 1-41, 2017.

34. P. J. Castaldi, M. Benet, H. Petersen, N. Rafaels, J. Finigan, M. Paoletti, H. Marike Boezen, J. M. Vonk, R. Bowler, M. Pistolesi, M. A. Puhan, J. Anto, E. Wauters, D. Lambrechts, W. Janssens, F. Bigazzi, G. Camiciottoli, M. H. Cho, C.P. Hersh, K. Barnes, S. Rennard, M. P. Boorgula, J. Dy, N. N. Hansel, J. D. Crapo, Y. Tesfaigzi, A. Agusti, E. K. Silverman, J. Garcia-Aymerich, *"Do COPD Subtypes Really Exist? COPD Heterogeneity and Clustering in 10 Independent Cohorts,"* **Thorax**, June 21, 2017. (pii: thoraxjnl-2016-209846. doi: 10.1136/thoraxjnl-2016-209846)

35. S. Ghanta, M. I. Jordan, K. Kose, D. H. Brooks, M. Rajadhyaksha, J. G. Dy, *"A Marked Poisson Process Driven Latent Shape Model for 3D Segmentation of Reflectance Confocal Microscopy Image Stacks of Human Skin,"* **IEEE Transactions on Image Processing**, 26(1): 172-184, 2017.

36. J. C. Ross, P. J. Castaldi, M. H. Cho, J. Chen, Y. Chang, J. G. Dy, E. K. Silverman, G. R. Washko, R. S. J. Estepar, *"A Bayesian Nonparametric Model for Disease Subtyping: Application to Emphysema Phenotypes,"* **IEEE Transactions on Medical Imaging**, 36(1): 343-354, 2017.

37. M. Shaker, D. Erdogmus, J. Dy, S. Bouix, *"Subject-Specific Abnormal Region Detection in Traumatic Brain Injury Using Sparse Model Selection on High Dimensional Diffusion Data,"* **Medical Image Analysis**, 37: 56-65, 2017. (doi: http://dx.doi.org/10.1016/j.media.2017.01.005)

38. U. Pe'er, J. G. Dy, *"Automated Target Detection for Geophysical Applications,"* **IEEE Transactions on Geoscience and Remote Sensing**, 55(3): 1563-1572, 2017.

39. S. Ghanta, J. G. Dy, D. Niu, M. I. Jordan, *"Latent Marked Poisson Process with Applications to Object Segmentation,"* **Bayesian Analysis**, 2016. (http://projecteuclid.org/euclid.ba/1480129463)

40. Y. Chang, K. Glass, Y.-Y. Liu, E. K. Silverman, J. D. Crapo, R. Tal-Singer, R. Bowler, J. Dy, M. Cho, P. Castaldi, *"COPD Subtypes Identified by Network-Based Clustering of Blood Gene Expression,"* **Genomics**, Vol. 107, Issues 2-3, 51-58, March 2016. (doi:10.1016/j.ygeno.2016.01.004)

41. J. Sourati, M. Akcakaya, J. G. Dy, T. K. Leen, D. Erdogmus, *"Classification Active Learning Based on Mutual Information,"* **Entropy**, 18(2), 51, February 2016. (doi:10.3390/e18020051)

42. A. Bozkurt, K. Kose, C. Alessi-Fox, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"Unsupervised Delineation of Stratum Corneum using Reflectance Confocal Microscopy and Spectral Clustering,"* **Skin Research and Technology**, 12 August, 2016. (doi:10.1111/srt.12316)

43. S. Kurugol, K. Kose, B. Park, J. G. Dy, D. H. Brooks, and M. Rajadhyaksha, *"Automated Delineation of Dermal-Epidermal Junction in Reflectance Confocal Microscopy Image Stacks of Human Skin,"* **Journal of Investigative Dermatology**, 135: 710-717, 2015; published online 25 September 2014. (doi:10.1038/jid.2014.379)

44. D. Niu, J. G. Dy, and M. I. Jordan, *"Iterative Discovery of Multiple Alternative Clustering Views,"* **IEEE Transactions on Pattern Analysis and Machine Intelligence**, 36(7): 1340-1353, 2014. (DOI: 10.1109/TPAMI.2013.180)

45. Y. Yan, R. Rosales, G. Fung, R. Subramanian, and J. G. Dy, *"Learning from Multiple Annotators with Varying Expertise,"* **Machine Learning**, 95(3): 291-327, 2014. (DOI:10.1007/s10994-013-5412-1)

46. F. Azmandian, A. Yilmazer, J. G. Dy, J. A. Aslam, D. R. Kaeli, *"Harnessing the Power of GPUs to Speed Up Feature Selection for Outlier Detection,"* **Journal of Computer Science and Technology**, 29(3): 408-422, 2014.

47. J. Sourati, D. Erdogmus, J. G. Dy, and D. H. Brooks, *"Accelerated Learning-Based Interactive Image Segmentation using Pairwise Constraints,"* **IEEE Transactions on Image Processing**, 23(7): 3057-3070, 2014. (DOI: 10.1109/TIP.2014.2325783)

48. D. Das, J. Dy, J. Ross, Z. Obradovic, and A.R. Ganguly, *"Non-parametric Bayesian* mixture of sparse regressions with application towards feature selection for statistical *downscaling,"* **Nonlinear Processes in Geophysics,** 21(6):1145-1157, 2014. (http://dx.doi.org/10.5194/npg-21-1145-2014)

49. P. Castaldi, J. Dy, J. Ross, Y. Chang, G. Washko, …(COPDGene Study team), E. Silverman, M. Cho, *"Cluster Analysis in the COPDGene Study Identifies Subtypes of Smokers with Distinct Patterns of Airway Disease and Emphysema,"* **Thorax**, 2014. (doi:10.1136/thoraxjnl-2013-203601)

50. J. H. Lee, M. H. Cho, M.-L. N. McDonald, C. P. Hersh, P. J. Castaldi, J. D. Crapo, E. S. Wan, J. G. Dy, Y. Chang, E. A. Regan, M. Hardin, D. L. DeMeo, E. K. Silverman, The COPDGene Investigators, *"Phenotypic and Genetic Heterogeneity among Subjects with Mild Airflow Obstruction in COPDGene,"* **Respiratory Medicine**, 108: 1469-1480, 2014. (DOI: http://dx.doi.org/10.1016/j.rmed.2014.07.018)

51. J. C. Ross, G. L. Kindlmann, Y. Okajima, H. Hatabu, A. A. Diaz, E. K. Silverman, G. R. Washko, J. Dy, R. San Jose Estepar, *"Pulmonary Lobe Segmentation based on Ridge Surface Sampling and Shape Model Fitting,"* **Medical Physics**, 40(12): 121903-, 2013.

52. J. Fan, J. G. Dy, C. C. Chang, X. Zhou, *"Identification of SNP-Containing Regulatory Motifs in the Myelodysplastic Syndromes Model using SNP Arrays and Gene Expression Arrays,"* **Chinese Journal of Cancer**, 32 (4): 170-, 2013.

53. J. Fan, X. Xia, Y. Li, J. G. Dy, S. T. Wong, *"A quantitative analytic pipeline for evaluating neuronal activities by high throughput synaptic vesicle imaging,"* **Neuroimage**, 62(3):2040-54, 2012. Pubmed ID: 22732566.

54. H. Tan, J. Fan, J. Bao, J. G. Dy, X. Zhou, *"A Computational model for compressed sensing RNAi cellular screening,"* **BMC Bioinformatics**, 27(13): 337-, 2012. doi: 10.1186/1471-2105-13-337.

55. F. Azmandian, M. Moffie, M. Alshawabkeh, J. Dy, J. Aslam, and D. Kaeli, *"Virtual Machine Monitor-based Lightweight Intrusion Detection,"* **ACM SIGOPS Operating Systems Review**, 45(2): 38-53, 2011.

56. S. Kurugol, J. G. Dy, D. H. Brooks, and M. Rajadhyaksha, *"Pilot Study of Semiautomated Localization of the Dermal/Epidermal Junction in Reflectance Confocal Microscopy Images of Skin,"* **Journal of Biomedical Optics**, 16(3): 036005-13, March 2011.

57. Y. Cui, X. Fern, and J. G. Dy, *"Learning Multiple Non-Redundant Clusterings,"* **ACM Transactions on Knowledge Discovery from Data**, 4(3), Article No. 15, 2010.

58. S. Patel, R. Hughes, T. Hester, J. Stein, M. Akay, J. G. Dy, and P. Bonato, *"A Novel Approach to Monitor Rehabilitation Outcomes in Stroke Survivors Using Wearable Technology,"* **Proceedings of the IEEE**, 98(3): 450-461, March 2010.

59. V. Vural, G. Fung, B. Krishnapuram, J. G. Dy, and B. Rao, *"Using Local Dependencies within Batches to Improve Large Margin Classifiers,"* **Journal of Machine Learning Research**, 10(Feb):183--206, 2009.

60. J. Fan, X. Zhou, J. G. Dy, Y. Zhang, and S. T. Wong, *"An Automated Pipeline for Dendrite Spine Detection and Tracking of 3D Optical Microscopy Neuron Images of in vivo Mouse Models,"* **Neuroinformatics**, 7(2):113-30, 2009.

61. S. Patel, K. Lorincz, R. Hughes, N. Huggins, J. Growdon, D. Standaert, M. Akay, J. Dy, M. Welsh, and P. Bonato, *"Monitoring Motor Fluctuations in Patients with Parkinson's Disease Using Wearable Sensors",* **IEEE Transactions on Information Technology in Biomedicine**, 13(6): 864-873, November 2009.

62. T. Lin, R. Li, X. Tang, J. G. Dy, and S. B. Jiang, *"Markerless Gating for Lung Cancer Radiotherapy based on Machine Learning Techniques,"* **Physics in Medicine and Biology**, 54: 1555-1563, 2009.

63. V. Vural, G. Fung, J. G. Dy, and B. Rao, *"Fast Semi-supervised SVM Classifiers Using A-priori Metric Information,"* **Optimization Methods and Software, Special Issue on Mathematical Programming in Data Mining and Machine Learning**, 23(4): 521-532, 2008.

64. A. Farhangfar, L. Kurgan, and J. Dy, *"Impact of Imputation of Missing Values on Classification Error for Discrete Data,"* **Pattern Recognition**, 41(12): 3692-3705, 2008.

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HIGHLY SELECTIVE CONFERENCE PUBLICATIONS

1. Zifeng Wang, Zheng Zhan, Yifan Gong, Yucai Shao, Stratis Ioannidis, Yanzhi Wang, Jennifer Dy, *"DualHSIC: HSIC-Bottleneck and Alignment for Continual Learning,"* **International Conference on Machine Learning (ICML)**, 2023. (27.9% acceptance rate.)

2. Zifeng Wang, Zizhao Zhang, Jacob Devlin, Chen-Yu Lee, Guolong Su, Hao Zhang, Jennifer G. Dy, Vincent Perot, Tomas Pfister, *"QueryForm: A Simple Zero-Shot Form Entity Query Framework,"* **Findings of the Association for Computational Linguistics (ACL)**, pages 4146-4159, 2023.

3. Aria Masoomi, Davin Hill, Zhonghui Xu, Craig P. Hersh, Edwin K. Silverman, Peter J. Castaldi, Stratis Ioannidis, Jennifer G. Dy, *"Explanations of Black-Box Models based on Directional Feature Interactions,"* **International Conference on Learning Representations (ICLR)**, 2022. (Accepted as *Spotlight*, top 5% of submitted papers)

4. Zifeng Wang, Zheng Zhan, Yifan Gong, Geng Yuan, Wei Niu, Tong Jian, Bin Ren, Stratis Ioannidis, Yanzhi Wang, Jennifer G. Dy, *"SparCL: Sparse Continual Learning on the Edge,"* **Advances in Neural Information Processing Systems (NeurIPS)**, 2022. (25.6% acceptance rate.)

5. Zifeng Wang, Zizhao Zhang, Chen-Yu Lee, Han Zhang, Ruoxi Sun, Xiaoqi Ren, Guolong Su, Vincent Perot, Jennifer G. Dy, Tomas Pfister, *"Learning to Prompt for Continual Learning,"* **IEEE International Conference on Computer Vision and Pattern Recognition (CVPR)**, pages 139-149, 2022. (25.33% acceptance rate)

6. Zifeng Wang, Zizhao Zhang, Sayna Ebrahimi, Ruoxi Sun, Han Zhang, Chen-Yu Lee, Xiaoqi Ren, Guolong Su, Vincent Perot, Jennifer G. Dy, Tomas Pfister, *"DualPrompt: Complementary Prompting for Rehearsal-Free Continual Learning,"* **European Conference on Computer Vision (ECCV)**, 26, pages 631-648, 2022.

7. Chieh Tzu Wu, Aria Masoomi, Arthur Gretton, Jennifer G. Dy, *"Deep Layer-Wise Networks have Closed-Form Weights,"* **International Conference on Artificial Intelligence and Statistics (AISTATS)**, pages 188-225, 2022. (29.19% acceptance rate)

8. Tong Jian, Zifeng Wang, Yanzhi Wang, Jennifer G. Dy, Stratis Ioannidis, *"Pruning Adversarially Robust Neural Networks without Adversarial Examples,"* **IEEE International Conference on Data Mining (ICDM)**, pages 993-998, 2022. (20% acceptance rate)

9. Zifeng Wang*, Tong Jian*, Aria Masoomi, Stratis Ioannidis, Jennifer Dy, "Revisiting Hilbert-Schmidt Information Bottleneck for Adversarial Robustness," **Advances in Neural Information Processing Systems (NeurIPS)**, 2021. (26% acceptance rate.)

10. Sandesh Ghimire, Aria Masoomi, Jennifer Dy, "Reliable Estimation of KL Divergence using a Discriminator in Reproducing Kernel Hilbert Space," **Advances in Neural Information Processing Systems (NeurIPS)**, 2021. (26% acceptance rate.)

11. Aria Masoomi*, Chieh T. Wu*, Tingting Zhao, Zifeng Wang, Peter Castaldi, Jennifer Dy, *"Instance-wise Feature Grouping,"* **Advances in Neural Information Processing Systems (NeurIPS)**, 2020. (20% acceptance rate.)

12. Eli Sennesh*, Zulqarnain Khan*, Yiyu Wang, J. Benjamin Hutchinson, Ajay Satpute, Jennifer Dy, Jan-Willem van de Meent, *"Neural Topographic Factor Analysis for fMRI Data,"* **Advances in Neural Information Processing Systems (NeurIPS)**, 2020. (20% acceptance rate.)

13. Zifeng Wang, Batool Salehi, Andrey Gritsenko, Kaushik Chowdhury, Stratis Ioannidis, and Jennifer Dy, *"Open-World Class Discovery with Kernel Networks,"* **IEEE International Conference on Data Mining (ICDM)**, 2020. (9.8% regular paper acceptance rate.)

14. Zifeng Wang*, Tong Jian*, Kaushik Chowdhury, Yanzhi Wang, Jennifer Dy, and Stratis Ioannidis, *"Learn-Prune-Share for Lifelong Learning,"* **IEEE International Conference on Data Mining (ICDM)**, 2020. (9.8% regular paper acceptance rate.)

15. Ilkay Yildiz, Jennifer Dy, Deniz Erdogmus, Jayashree Kalpathy-Cramer, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Stratis Ioannidis, *"Fast and Accurate Ranking Regression,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, 2020.

16. Chieh Wu, Zulqarnain Khan, Stratis Ioannidis, Jennifer Dy, *"Deep Kernel Learning for Clustering,"* **SIAM International Conference on Data Mining (SDM)**, 2020. (24% acceptance rate.)

17. Yumin Liu, Auroop R. Ganguly, Jennifer G. Dy, "Climate Downscaling Using YNet: A Deep Convolutional Network with Skip Connections and Fusion," **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, **Applied Data Science Track**, pp. 3145-3153, 2020. (16% acceptance rate.)

18. Amani Al-Shawabka, Francesco Restuccia, Salvatore D'Oro, Tong Jian, Bruno Costa Rendon, Nasim Soltani, Jennifer Dy, Stratis Ioannidis, Kaushik Chowdhury, Tommaso Melodia, "Exposing the Fingerprint: Dissecting the Impact of the Wireless Channel on Radio Fingerprinting," **IEEE Conference on Computer Communications (IEEE INFOCOM)**, 2020. (19.8% acceptance rate.)

19. Chieh Wu, Jared Miller, Yale Chang, Mario Sznaier, Jennifer G. Dy, *"Solving Interpretable Kernel Dimension Reduction,"* **Advances in Neural Information Processing Systems (NeurIPS)**, pp. 7913-7923, 2019. (21% acceptance rate.)

20. Yumin Liu, Junxiang Chen, Auroop R. Ganguly, Jennifer G. Dy, *"Nonparametric Mixture of Sparse Regressions on Spatio-Temporal Data – An Application to Climate Prediction,"* **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, **Applied Data Science Track**, pp. 2556-2564, 2019. (Accepted as Oral presentation with 6.4% acceptance rate.)

21. Peng Tian, Yuan Guo, Jayashree Kalpathy-Cramer, Susan Ostmo, John Peter Campbell, Michael F. Chiang, Jennifer G. Dy, Deniz Erdogmus, Stratis Ioannidis, *"A Severity Score for Retinopathy of Prematurity,"* **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, **Applied Data Science Track**, pp. 1809-1819, 2019. (14.3% acceptance rate.)

22. Yuan Guo, Jennifer Dy, Deniz Erdogmus, Jayashree Kalpathy-Cramer, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Stratis Ioannidis, *"Accelerated Experimental Design for Pairwise Comparisons,"* **SIAM International Conference on Data Mining (SDM)**, pp. 432-440, 2019.

23. Babak Esmaeili, Hao Wu, Sarthak Jain, Alican Bozkurt, N Siddharth, Brooks Paige, Dana Brooks, Jennifer Dy, Jan-Willem van de Meent, *"Structured Disentangled Representations,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, 2019. (32.4% acceptance rate.)

24. Yuan Guo, Jennifer G. Dy, Deniz Erdogmus, Jayashree Kalpathy-Cramer, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Stratis Ioannidis, *"Variational Inference from Ranked Samples with Features,"* **Asian Conference on Machine Learning (ACML)**, pp. 599-614, 2019. (26.8% acceptance rate.)

25. Tong Jian, Bruno Costa Rendon, Andrey Gritsenko, Jennifer Dy, Kaushik Chowdhury, Stratis Ioannidis, *"MAC ID Spoofing-Resistant Radio Fingerprinting,"* **IEEE Global Conference on Signal and Information Processing (GlobalSIP)**, pp. 1-5, 2019.

26. Chieh Wu, Stratis Ioannidis, Mario Sznaier, Xiangyu Li, David R. Kaeli, Jennifer G. Dy, *"Iterative Spectral Method for Alternative Clustering,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, pp. 115-123, 2018. (33% acceptance rate.)

27. Junxiang Chen, Yale Chang, Peter J. Castaldi, Michael H. Cho, Brian Hobbs, Jennifer G. Dy, *"Crowdclustering with Partition Labels,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, pp. 1127-1136, 2018.

28. Yuan Guo, Peng Tian, Jayashree Kalpathy-Cramer, Susan Ostmo, J. Peter Campbell, Michael F. Chiang, Deniz Erdogmus, Jennifer G. Dy, Stratis Ioannidis, *"Experimental Design under the Bradley-Terry Model,"* **Joint International Conference on Artificial Intelligence**, pp. 2198-2204, 2018.

29. Thomas Vandal, Evan Kodra, Jennifer G. Dy, Sangram Ganguly, Ramakrishna R. Nemani, Auroop R. Ganguly, *"Quantifying Uncertainty in Discrete-Continuous and Skewed Data with Bayesian Deep Learning,"* **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, pp. 2377-2386, 2018.

30. Alican Bozkurt, Kivanç Köse, Christi Alessi-Fox, Melissa Gill, Jennifer G. Dy, Dana H. Brooks, Milind Rajadhyaksha, *"A Multiresolution Convolutional Neural Network with Partial Label Training for Annotating Reflectance Confocal Microscopy Images of Skin,"* **Proceedings of the International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI),** Part II, pp. 292-299, 2018.

31. Xiangyu Li, Chieh Wu, Shi Dong, Jennifer G. Dy, David R. Kaeli, *"Interactive Kernel Dimension Alternative Clustering on GPUs,"* **IEEE/ACM International Conference on Advances in Social Networks Analysis and Mining (ASONAM)**, pp. 885-892, 2018.

32. Y. Li, A. Ding, J. Dy, *"Rate Optimal Estimation for High Dimensional Spatial Covariance Matrices,"* **Proceedings of the Asian Conference on Machine Learning (ACML)**, pp. 208-223, 2017 (Best Student Paper Runner-Up).

33. Y. Chang, J. Chen, M. H. Cho, P. J. Castaldi, E. K. Silverman, J. G. Dy, *"Multiple Clustering Views from Multiple Uncertain Experts,"* **Proceedings of the International Conference on Machine Learning (ICML)**, pp. 674-683, 2017. (25% acceptance rate.)

34. Y. Chang, J. Chen, M. H. Cho, P. J. Castaldi, E. K. Silverman, J. G. Dy, *"Clustering with Domain-Specific Usefulness Scores,"* **Proceedings of the SIAM International Conference on Data Mining (SDM)**, pp. 207-215, 2017. (26% acceptance rate.)

35. Y. Chang, J. Chen, M. H. Cho, P. J. Castaldi, E. K. Silverman, J. G. Dy, *"Clustering from Multiple Uncertain Experts,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, pp. 28-36, 2017. (31.7% acceptance rate.)

36. Y. Chang and J. G. Dy, *"Informative Subspace Learning for Counterfactual Inference,"* **Proceedings of the Thirty-First AAAI Conference on Artificial Intelligence (AAAI)**, pp. 1770-1776, 2017. (24.6% acceptance rate. Selected for oral presentation.)

37. J. Chen, Y. Chang, B. Hobbs, P. Castaldi, M. Cho, E. Silverman, J. Dy, *"Interpretable Clustering via Discriminative Rectangle Mixture Model,"* **IEEE International Conference on Data Mining (ICDM)**, 2016. (19.6% acceptance rate.)

38. J. Chen and J. G. Dy, *"A Generative Block-Diagonal Model for Clustering,"* **Proceedings of the Thirty-Second Conference on Uncertainty in Artificial Intelligence (UAI)**, pp. 112-121, 2016. (31% acceptance rate. Among the 9.5% selected for plenary oral presentation.) ISBN 978-0-9966431-1-5

39. Y. Zhao, B. Ahmed, T. Thesen, K. E. Blackmon, J. G. Dy, C. E. Brodley, R. Kuzniecky, O. Devinsky, *"A Non-Parametric Approach to Detect Epileptogenic Lesions using Restricted Boltzmann Machines,"* **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, 373-382, 2016.

40. Y. Chang, Y. Li, A. Ding, J. Dy, *"A Robust-Equitable Copula Dependence Measure for Feature Selection,"* **Proceedings of the International Conference on Artificial Intelligence and Statistics (AISTATS)**, JMLR: W&CP volume 51, pp. 84-92, 2016. (30.7% accept rate.)

41. Y. Zhao, T. Chitnis, B. C. Healy, J. G. Dy, C. E. Brodley, *"Domain Induced Dirichlet Mixture of Gaussian Processes: An Application to Predicting Disease Progression in Multiple Sclerosis*

Patients," **IEEE International Conference on Data Mining (ICDM)**, 1129-1134, 2015. (18.1% acceptance rate.) *(DOI: 10.1109/ICDM.2015.74)*

42. S. M. Brown, A. Webb, R. S. Mangoubi, and J. G. Dy, *"A Sparse Combined Regression-Classification Formulation for Learning a Physiological Alternative to Clinical Post-Traumatic Stress Disorder Scores,"* **Twenty-Ninth AAAI Conference on Artificial Intelligence**, pp. 1700-1706, 2015. (26.67% acceptance rate.) *(www.aaai.org/ocs/index.php/AAAI/AAAI15/paper/viewPaper/9695)*

43. J. Chen, W. Dai, Y. Sun, and J. Dy, *"Clustering and Ranking in Heterogeneous Information Networks via Gamma-Poisson Model,"* **SIAM International Conference on Data Mining**, pp. 424-432, 2015. (22% acceptance rate.) *(DOI: http://dx.doi.org/10.1137/1.9781611974010.48)*

44. J. C. Ross, P. J. Castaldi, M. H. Cho, and J. G. Dy, *"Dual Beta Process Priors for Latent Cluster Discovery in Chronic Obstructive Pulmonary Disease,"* **Proceedings of the ACM Knowledge Discovery and Data Mining (KDD)**, 2014. (14.6% accept rate.) *(DOI: 10.1145/2623330.2623750)*

45. J. Ross and J. Dy, *"Nonparametric Mixture of Gaussian Processes with Constraints,"* **Proceedings of the International Conference on Machine Learning (ICML), JMLR W&CP** 28 (3): 1346-1354, 2013. (24% accept rate.) *(http://jmlr.org/proceedings/papers/v28/ross13a.pdf)*

46. D. Niu, J. G. Dy, Z. Ghahramani, "*A Nonparametric Bayesian Model for Multiple Clustering with Overlapping Feature Views,"* **Journal of Machine Learning Research - Proceedings Track 22 (International Conf. on Artificial Intelligence and Statistics (AISTATS))**, pp. 814-822, 2012. *(http://jmlr.csail.mit.edu/proceedings/papers/v22/niu12/niu12.pdf)*

47. Y. Yan, R. Rosales, G. Fung, F. Farooq, B. Rao, J. G. Dy, *"Active Learning from Multiple Knowledge Sources,"* **Journal of Machine Learning Research - Proceedings Track 22 (International Conf. on Artificial Intelligence and Statistics (AISTATS))**, pp. 1350-1357, 2012.

48. F. Azmandian, J. G. Dy, J. A. Aslam, D. R. Kaeli, *"Local Kernel Density Ratio-Based Feature Selection for Outlier Detection,"* **Journal of Machine Learning Research - Proceedings Track 25 (Asian Conference on Machine Learning)**, pp. 49-64, 2012. *(Best Poster Award)*

49. F. Azmandian, A. Yilmazer, J. G. Dy, J. A. Aslam, D. R. Kaeli, *"GPU-Accelerated Feature Selection for Outlier Detection Using the Local Kernel Density Ratio,"* **IEEE International Conference on Data Mining (ICDM)**, pp. 51-60, 2012. (10.71% acceptance rate.) *(DOI:10.1109/ICDM.2012.51)*

50. M. Alshawabkeh, J. A. Aslam, J. G. Dy, D. R. Kaeli, *"Feature Weighting and Selection Using Hypothesis Margin of Boosting,"* **IEEE International Conference on Data Mining (ICDM)**, pp. 41-50, 2012. (10.71% acceptance rate.) *(DOI:10.1109/ICDM.2012.143)*

51. Y. Yan, R. Rosales, G. Fung, and J. Dy, *"Active Learning from Crowds,"* **Proceedings of the 28th International Conference on Machine Learning (ICML)**, pp. 1161-1168, 2011. (26% acceptance rate.) *(http://www.icml-2011.org/papers/596_icmlpaper.pdf)*

52. Y. Guan, J. G. Dy, and M. I. Jordan, *"A Unified Probabilistic Model for Global and Local Unsupervised Feature Selection,"* **Proceedings of the 28th International Conference on Machine Learning (ICML)**, pp. 1073-1080, 2011. (26% acceptance rate.)

53. D. Niu, J. G. Dy, and M. I. Jordan, *"Dimensionality Reduction for Spectral Clustering,"* **JMLR Workshop and Conference Proceedings Volume 15: AISTATS (Artificial Intelligence and Statistics)**, pp. 552-560, 2011. (36% acceptance rate.) *(http://jmlr.csail.mit.edu/proceedings/papers/v15/niu11a/niu11a.pdf)*

54. M. Alshawabkeh, J. A. Aslam, D. R. Kaeli, J. G. Dy, *"Feature Selection Metric Using AUC Margin for Small Samples and Imbalanced Data Classification Problems"* **IEEE International Conference on Machine Learning and Applications (ICMLA)**, pp. 145-150, 2011.

55. M. Alshawabkeh, J. A. Aslam, D. R. Kaeli, J. G. Dy, *"A Novel Feature Selection for Intrusion Detection in Virtual Machine Environments,"* **Proceedings of the IEEE International Conference on Tools with Artificial Intelligence, ICTAI 2011**, pp. 879-881, 2011. (28.9% acceptance rate)

56. F. Azmandian, M. Moffie, J. G. Dy, J. A. Aslam, D. R. Kaeli, *"Workload Characterization at the Virtualization Layer,"* **IEEE International Symposium on Modeling, Analysis and Simulation of Computer and Telecommunication Systems, MASCOTS 2011**, pp. 63-72, 2011. (26% acceptance rate)

57. Y. Yan, R. Rosales, G. Fung, and J. G. Dy, *"Modeling Multiple Annotator Expertise in the Semi-Supervised Learning Scenario,"* **Proceedings of the 26th Conference on Uncertainty in Artificial Intelligence (UAI)**, pp. 674-682, 2010. (33.8% acceptance rate. Selected for oral presentation.)

58. M. Masaeli, G. Fung, and J. G. Dy, *"From Transformation-Based Dimensionality Reduction to Feature Selection,"* **Proceedings of the 27th International Conference on Machine Learning (ICML)**, pp. 751-758, 2010. (25.6% acceptance rate.)

59. D. Niu, J. G. Dy, and M. I. Jordan, *"Multiple Non-Redundant Spectral Clustering Views,"* **Proceedings of the 27th International Conference on Machine Learning (ICML)**, pp. 831-838, 2010. (25.6% acceptance rate.) *(http://www.icml2010.org/papers/342.pdf)*

60. Y. Yan, G. Fung, J. G. Dy, and R. Rosales, *"Medical Coding Classification by Leveraging Inter-Code Relationships,"* **Proceedings of the ACM SIGKDD International Conference on Knowledge Discovery and Databases (KDD)**, pp. 193-202, 2010. *(DOI:10.1145/1835804.1835831)*

61. Y. Yan, R. Rosales, G. Fung, M. Schmidt, G. Hermosillo, L. Bogoni, L. Moy, and J. G. Dy, *"Modeling Annotator Expertise: Learning when Everybody Knows a Bit of Something,"* **Proceedings of the Thirteenth International Conference on Artificial Intelligence and Statistics (AISTATS)**, Vol. 9, pp. 932-939, 2010. (Among 7.8% accepted for oral presentation.) *(http://jmlr.csail.mit.edu/proceedings/papers/v9/yan10a/yan10a.pdf)*

62. S. Kurugol, N. Ozay, J. G. Dy, G. C. Sharp, and D. H. Brooks, *"Locally Deformable Shape Model to Improve 3D Level Set Based Esophagus Segmentation,"* **Proceedings of the International Conference on Pattern Recognition (ICPR)**, pp. 3955-3958, 2010. *(DOI: 10.1109/ICPR.2010.962)*

63. M. Masaeli, Y. Yan, Y. Cui, G. Fung, and J. G. Dy, *"Convex Principal Feature Selection,"* **Proceedings of the SIAM International Conference on Data Mining (SDM)**, pp. 619-628, Columbus, OH, April 29-May 1, 2010. (23.36% acceptance rate.)

64. M. Alshawabkeh, M. Moffie, F. Azmandian, J. A. Aslam, J. G. Dy, D. R. Kaeli, "*Effective Virtual Machine Monitor Intrusion Detection Using Feature Selection on Highly Imbalanced Data,"* **ICMLA 2010**, pp. 823-827, 2010.

65. V. Vural, G. Fung, R. Rosales, and J. G. Dy, *"Multi-Class Classifiers and Their Underlying Shared Structure,"* **Proceedings of the Twenty-first International Joint Conference on Artificial Intelligence (IJCAI)**, pp. 1267-1272, 2009. (25.7% acceptance rate.)

66. Y. Guan and J. G. Dy, *"Sparse Probabilistic Principal Component Analysis,"* **Proceedings of the Twelfth International Conference on Artificial Intelligence and Statistics (AISTATS)**, Vol. 5, pp. 185-192, 2009. (40% acceptance rate.)

67. Y. Cui, J. G. Dy, G. C. Sharp, B. M. Alexander, and S. B. Jiang, *"Learning methods for lung tumor markerless gating in image-guided radiotherapy,"* **Proceedings of the fourteenth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)**, pp. 902-910, Las Vegas, Nevada, August 2008. (26% acceptance rate.)

68. Y. Cui, X. Fern, and J. G. Dy, *"Non-redundant Multi-view Clustering Via Orthogonalization,"* **Proceedings of the IEEE International Conference on Data Mining (ICDM)**, pp. 133-142, Omaha, NE, October 2007. (Acceptance rate: 19.2%, among the 7.2% accepted as regular papers.)

69. V. Vural, G. Fung, B. Krishnapuram, J. Dy, and B. Rao, *"Batch Classification with Applications in Computer Aided Diagnosis,"* **Proceedings of the Seventeenth European Conference on Machine Learning (ECML)**, vol. 4212, p. 449-460, Berlin, Germany, Sept. 18-22, 2006. (Acceptance rate: 25.5%, among the 14.5% accepted as full papers.)

70. K. Sanghai, T. Su, J. G. Dy, and D. Kaeli, *"A Multinomial Clustering Model for Fast Simulation of Computer Architecture Designs,"* **Proceedings of the Eleventh ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)**, pp. 808-813, August 21-24, Chicago, IL, 2005. (Acceptance rate: 34.2%).

71. T. Su and J. G. Dy, *"A Deterministic Method for Initializing K-means Clustering,"* **Proceedings of the 16th IEEE International Conference on Tools with Artificial Intelligence (ICTAI)**, pp. 784-786, November, 2004, Boca Raton, Florida. (Acceptance rate: 49.3%).

72. T. Su and J. G. Dy, *"Automated Hierarchical Mixtures of Probabilistic Principal Component Analyzers,"* **Proceedings of the 21st International Conference on Machine Learning (ICML)**, pp. 775-782, Banff, Alberta, Canada, July 2004. (Acceptance rate: 32%, among the 17.7% unconditionally accept papers.)

73. V. Vural and J. G. Dy, *"A Hierarchical Method for Multi-Class Support Vector Machines,"* **Proceedings of the 21st International Conference on Machine Learning (ICML)**, pp. 831-838, Banff, Alberta, Canada, July 2004. (Acceptance rate: 32%, among the 17.7% unconditionally accept papers.)

74. J. G. Dy and C. E. Brodley, *"Visualization and Interactive Feature Selection for Unsupervised Data,"* **Proceedings of the Sixth ACM SIGKDD International Conference on Knowledge Discovery and Data Mining (KDD)**, pp. 360-364, August 20-23, 2000, Boston, MA. (Acceptance rate: 20%). *(DOI:10.1145/347090.347168)*

75. J. G. Dy and C. E. Brodley, *"Feature Subset Selection and Order Identification for Unsupervised Learning,"* **Proceedings of the Seventeenth International Conference on Machine Learning (ICML)**, pages 247-254, June 29-July 2, 2000, Stanford University, CA. (Acceptance rate: 43%, among the 19% unconditionally accept papers.)

76. C. E. Brodley, A. C. Kak, J. G. Dy, C. R. Shyu, A. Aisen, and L. Broderick, *"Content-based retrieval from medical image databases: A synergy of human interaction, machine learning and computer vision,"* **Proceedings of the Sixteenth National Conference on Artificial Intelligence (AAAI)**, pp. 760-767, July 18-22, 1999, Orlando, FL. (Acceptance rate: 27%).

77. J. G. Dy, C. E. Brodley, A. Kak, C. Shyu and L. S. Broderick, *"The customized-queries approach to CBIR using EM,"* **Proceedings of the IEEE Conference on Computer Vision and Pattern Recognition (CVPR)**, Vol. II, pp. 400-406, June 1999, Fort Collins, Colorado. (Acceptance rate: 38%).

OTHER PEER REVIEWED CONFERENCES/WORKSHOPS

1. Ayan Paul, Fady Bishara, Jennifer Dy, *"Skip Connections for High Precision Regressors,"* **Machine Learning and the Physical Sciences (ML4PS) Workshop at NeurIPS**, 2022.

2. Davin Hill, Max Torop, Aria Masoomi, Peter J Castaldi, Jennifer Dy, Michael H Cho, Brian D Hobbs, *"Deep Learning Utilizing Discarded Spirometry Data to Improve Lung Function and Mortality Prediction in the UK Biobank,"* **American Thoracic Society (ATS)**, 2022. (Selected for oral presentation) (Abstract)

3. Tooba Imtiaz, Morgan Kohler, Jared Miller, Octavia Camps, Mario Sznaier, Jennifer Dy, *"Interpretable Adversarial Attacks using Frank Wolfe,"* **Women in Machine Learning (WiML) at ICML**, 2022. (Abstract)

4. Guangyu Li, Chieh Wu, Dongqi Wang, David R. Kaeli, Jennifer G. Dy, April Z. Gu, *"Machine learning kernel divergence-based de novo sampling size optimization for environmental applications: A cases study of single-cell Raman spectroscopic phenotyping of EBPR microbial communities,"* **ACS National Meeting & Expo**, Philadelphia, PA, March 22 - 26, 2020. (Oral presentation)

5. Andrey Gritsenko*, Zifeng Wang*, Tong Jian, Jennifer Dy, Kaushik Chowdhury, Stratis Ioannidis, "*Finding a 'New' Needle in the Haystack: Unseen Radio Detection in Large Populations Using Deep Learning,"* **IEEE International Symposium on Dynamic Spectrum Access Networks (DySPAN)**, pp. 1-10, 2019. (Best Paper Award.)

6. Kunal Sankhe, Francesco Restuccia, Salvatore D'Oro, Tong Jian, Zifeng Wang, Amani Al-Shawabka, Jennifer Dy, Tommaso Melodia, Stratis Ioannidis, Kaushik Chowdhury, *"Impairment Shift Keying: Covert Signaling by Deep Learning of Controlled Radio Imperfections,"* **IEEE Military Communications Conference (MILCOM)**, 2019.

7. K. Kose, A. Bozkurt, M. Gou, C. Alessi-Fox, M. Gill, O. Camps, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"How machine vision and deep nets can help in adoption of reflectance confocal microscopy in clinical practice,"* **Multimodal Biomedical Imaging XIV**, **SPIE Photonics West**, 10871-17, 2019. (Invited Paper)

8. A. Bozkurt, K. Kose, J. Coll-Font, C. Alessi-Fox, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"Skin strata delineation in reflectance confocal microscopy images using recurrent convolutional networks with attention,"* **Photonics in Dermatology and Plastic Surgery**, **SPIE Photonics West**, 10851-10-7, 2019.

9. K. Kose, A. Bozkurt, C. Alessi-Fox, M. Gill, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"Fully convolutional neural networks with partial label training for annotating reflectance confocal microscopy mosaics of melanocytic lesions,"* **Photonics in Dermatology and Plastic Surgery**, **SPIE PhotonicsWest**, 10851-7, 2019.
10. J. G. Dy, K. Kose, A. Bozkurt, D. H. Brooks, M. Rajadhyaksha, *"Machine learning for optical skin microscopy: a tutorial, current advances, and challenges,"* **Photonics in Dermatology and Plastic Surgery**, **SPIE Photonics West**, 10851-4, 2019. (Invited Paper)

11. K. Kose, A. Bozkurt, C. Alessi-Fox, M. Gill, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"Facilitating the Adoption of Reflectance Confocal Microscopy (RCM) in Clinical Cancer Care Practice with Machine Learning,"* **Frontier of AI-Assisted Care Scientific Symposium**, 2019.

12. Guangyu Li, Chieh Wu, Dongqi Wang, David R. Kaeli, Jennifer G. Dy, April Z. Gu, *"Sample Size Assessment via Kernel Divergence: A Case Study with Single-cell Raman Spectroscopic Datasets,"* **8th IWA Microbial Ecology and Water Engineering Specialist Conference**, Hiroshima, Japan, November 17-20, 2019. (Poster)

13. Alican Bozkurt, Babak Esmaeili, Dana Brooks, Jennifer Dy, Jan-Willem van de Meent, *"Can VAEs Generate Novel Examples?"* **NeurIPS Workshop on Critiquing and Correcting Trends in Machine Learning (CRACT)**, 2018.

14. J. Sourati, A. Gholipour, J. G. Dy, S. Kurugol, S. K. Warfield, *"Active Deep Learning with Fisher Information for Patch-Wise Semantic Segmentation,"* **International Workshop on Deep Learning in Medical Image Analysis and Multimodal Learning for Clinical Decision Support at MICCAI (DLMIA/ML-CDS@MICCAI)**, pp. 83-91, 2018.

15. Shi Dong, Zlatan Feric, Xiangyu Li, Sheikh Mokhlesur Rahman, Guangyu Li, Chieh Wu, April Z. Gu, Jennifer G. Dy, David R. Kaeli, John Meeker, Ingrid Y. Padilla, Jose Cordero, Carmen Velez Vega, Zaira Rosario, Akram Alshawabkeh, *"A Hybrid Approach to Identifying Key Factors in Environmental Health Studies,"* **5th International Workshop on Big Data Analytic Technology for Bioinformatics and Health Informatics @ 2018 IEEE International Conference on Big Data**, pp. 2855-2862, 2018.

16. K. Kose, A. Bozkurt, C. Alessi-Fox, M. Gill, D. H. Brooks, J. G. Dy, and M. Rajadhyaksha, *"A Multiresolution Deep Learning Framework for Automated Annotation of Reflectance Confocal Microscopy Images,"* **Biophotonics Congress: Biomedical Optics Congress 2018 (Microscopy/Translational/Brain/OTS)**, OSA Technical Digest (Optical Society of America, 2018), paper MTh2A.1, 2018.

17. S. Ariafar, J. Coll-Font, D. Brooks, J. Dy, *"An ADMM Framework for Constrained Bayesian Optimization,"* **Workshop on Bayesian Optimization at NIPS**, 2017.

18. A. Bozkurt, K. Kose, C. Alessi-Fox, D. Brooks, J. Dy and M. Rajadhyaksha, *"Delineation of Skin Strata in Reflectance Confocal Microscopy Images using Recurrent Convolutional Networks with Toeplitz Attention,"* **Workshop on Machine Learning for Health at NIPS**, 2017.

19. A. Bozkurt, T. Gale, K. Kose, D. H. Brooks, M. Rajadhyaksha, J. Dy, *"Delineation of Skin Strata in Reflectance Confocal Microscopy Images with Recurrent Convolutional Networks,"* **Workshop on Computer Vision for Microscopy Image Analysis (CVMI) at CVPR**, 2017.

20. Y. Li, A. Ding, J. Dy, *"A Nonparametric Copula Based Bias Correction Method for Statistical Downscaling,"* **Proceedings of the 6th International Workshop on Climate Informatics: CI 2016**, NCAR Technical Note NCAR/TN-529+PROC, September, 2016. (doi:10.5065/D6K072N6)

21. J. Sourati, S. C. Kazmierczak, M. Akcakaya, J. G. Dy, T. K. Leen, D. Erdogmus, *"Assessing Subsets of Analytes in Context of Detecting Laboratory Errors,"* **Engineering in Medicine and Biology Society (EMBC)**, 5793-5796, 2016.

22. B. Ahmed, T. Thesen, K. E. Blackmon, R. Kuzniecky, O. Devinsky, J. G. Dy, C. E. Brodley, *"Multi-task Learning with Weak Class Labels: Leveraging iEEG to Detect Cortical Lesions in Cryptogenic Epilepsy,"* **Machine Learning for Healthcare (MLHC)**, pp. 115-133, 2016.

23. K. Kose, C. Alessi-Fox, M. Gill, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"A machine learning method for identifying morphological patterns in reflectance confocal microscopy mosaics of melanocytic skin lesions in-vivo,"* **SPIE Proceedings**, Vol. 9689, Photonic Therapeutics and Diagnostics XII, 968908, February 2016. (doi:10.1117/12.2212978)

24. A. Bozkurt, K. Kose, C. A. Fox, J. Dy, D. H. Brooks, M. Rajadhyaksha, *"An unsupervised machine learning method for delineating stratum corneum in reflectance confocal microscopy stacks of human skin in vivo,"* **SPIE Proceedings**, Vol. 9689, Photonic Therapeutics and Diagnostics XII, 96890Z, February 2016. (doi:10.1117/12.2213036)

25. F. Azmandian, D. R. Kaeli, J. G. Dy, J. A. Aslam, *"Securing virtual execution environments through machine learning-based intrusion detection,"* **IEEE 25th International Workshop on Machine Learning for Signal Processing (MLSP)**, 1-6, 2015. (paper) (DOI: 10.1109/MLSP.2015.7324345)

26. M. Shaker, D. Erdogmus, J. G. Dy, S. Bouix, *"Sparse model learning for high dimensional diffusion MRI data in traumatic brain injury,"* **IEEE 25th International Workshop on Machine Learning for Signal Processing (MLSP)**, 1-6, 2015. (paper) (DOI: 10.1109/MLSP.2015.7324375)

27. Y. Li, Y. Chang, T. Vandal, D. Das, A. Ding, A. Ganguly, J. Dy, *"Copula Based Covariate Selection in Climate for Statistical Downscaling,"* **5th International Workshop on Climate Informatics**, 2015. (two pages)

28. Sindhu Ghanta, Salar Shahini Shamsabadi, Jennifer Dy, Ming Wang, Ralf Birken, *"A Hessian-Based Methodology for Automatic Surface Crack Detection and Classification from Pavement Images,"* **SPIE Smart Structures and Materials+ Nondestructive Evaluation and Health Monitoring**, International Society for Optics and Photonics, 94371Z-94371Z-11, 2015. (paper).

29. Y. Yan, R. Rosales, G. Fung, and J. Dy, *"Active Learning from Uncertain Crowd Annotations,"* 52nd Annual Allerton Conference on Communication, Control, and Computing, University of Illinois at Urbana-Champaign, Oct. 1-3, 2014. (paper).

30. E. N. Yolacan, J. G. Dy, and D. R. Kaeli, *"System Call Anomaly Detection Using Multi-HMMs,"* **IEEE Eighth International Conference on Software Security and Reliability-Companion (SERE-C)**, pp. 25-30, 2014. (paper) (DOI: 10.1109/SERE-C.2014.19)

31. J. Ross, A. A. Diaz, Y. Okajima, D. Wassermann, G. R. Washko, J. Dy, and R. San Jose Estepar, *"Airway Labeling using a Hidden Markov Tree Model,"* **IEEE International Symposium on Biomedical Imaging**, 2014. (paper).

32. X. An, A. R. Ganguly, Y. Fang, S. B. Scyphers, A. M. Hunter, and J. G. Dy, *"Tracking Climate Change Opinions from Twitter Data,"* **Workshop on Data Science for Social Good at KDD,** 2014. (paper).

33. K. Kose, M. Cordova, J. G. Dy, D. H. Brooks, M. Rajadhyaksha, *"Deconstructing Skin: RCM and FCM interpretation with quantitative image analysis tools,"* **Dermatology Practical & Conceptual**, 4(3): 2–3, .Jul 2014. (abstract).

34. K. Kose, C. Alessi-fox, J.G. Dy, D.H. Brooks, M. Rajadhyaksha, *"Computer-aided Algorithm for Delineating Dermal Epidermal Junction in Reflectance Confocal Images of Skin,"* **Lasers in Medicine & Biology**, Gordon Research Conference, July 2014. (abstract).

35. K. Kose, J. Dy, D. Brooks, and M. Rajadhyaksha, *"Image Analysis Based Automated DEJ Detection Method for RCM Stacks,"* **SPIE Photonics West**, 2014. (abstract).

36. A. Bozkurt, K. Kose, J. Sourati, C. Alessi-Fox, J. Dy, D. Brooks, and M. Rajadhyaksha, *"Computer based algorithm for estimating stratum corneum thickness from Reflectance Confocal Microscopy (RCM) images,"* **SPIE Photonics West**, 2014. (abstract).

37. J. Sourati, K. Kose, M. Rajadhyaksha, J. G. Dy, D. Erdogmus, and D. H. Brooks, *"Automated Localization of Wrinkles and the Dermo-Epidermal Junction in Obliquely-Oriented Reflectance Confocal Microscopic Images of Human Skin,"* **SPIE BiOS**, 2013.

38. K. Kose, C. Alessi-Fox, J. G. Dy, D. Brooks, and M. Rajadhyaksha, *"Computer-based Algorithms for Classification of Skin Cancer Morphology in Reflectance Confocal Microscopy Images,"* **62nd Annual Montagna Symposium on the Biology of Skin**, Light and Skin: How Light Sustains, Damages, Treats, Images and Modifies Skin Biology, Stevenson, Washington, USA, October, 2013. (abstract).

39. M. Moghadamfalahi, A. Satpute, M. Akcakaya, D. Brooks, J. Dy, D. Erdogmus, and L. Barrett, *"Are affective responses in fMRI independent of previous affect-inducing stimuli?"* **Organization for Human Brain Mapping (OHBM)**, 2013. (abstract).

40. J. Sourati, D. H. Brooks, J. G. Dy, E. Ataer Cansizoglu, D. Erdogmus, and M. Rajadhyaksha, *"Unsupervised wrinkle detection in reflectance confocal microscopy images of the human skin,"* **IEEE International Conference on Acoustics, Speech, and Signal Processing** , pp. 705-708, 2012. (paper).

41. J. Sourati, D. H. Brooks, J. G. Dy, and D. Erdogmus, *"Constrained spectral clustering for image segmentation,"* **In IEEE Workshop on Machine Learning for Signal Processing (MLSP)**, pp. 1-6. IEEE, Santander, Spain, Sept. 23-26, 2012. (paper).

42. S. Kurugol, M. Rajadhyaksha, J. G. Dy, and D. H. Brooks, *"Validation study of automated dermal/epidermal junction localization algorithm in refectance confocal microscopy images of skin,"* **In Proc. SPIE Photonics West**, San Francisco, USA, Feb 2012.

43. S. Ghanta, R. Birken, and J. Dy, *"Automatic road surface defect detection from grayscale images*,*"* **In Proc. of SPIE Symposium on Smart Structures and Materials + Nondestructive Evaluation and Health Monitoring**, 83471E-83471E-12, San Deigo, CA, March 11-15, 2012.

44. M. Alshawabkeh, D. Kaeli, J. Aslam, J. Dy, and D. Schaa, *"Enhanced Boosting-based Algorithm for Intrusion Detection in Virtual Machine Environments,*" **First International Workshop on Secure and Resilient Architectures and Systems (SRAS), Minneapolis, MN, held in conjunction with PACT (International Conference on Parallel Architectures and Compilation Techniques)**, Sept. 19, 2012. (paper)

45. F. Azmandian, D. Kaeli, J. Aslam, J. Dy, and D. Schaa, *"Securing Cloud Storage Systems through a Virtual Machine Monitor,*" **First International Workshop on Secure and Resilient Architectures and Systems (SRAS), Minneapolis, MN, held in conjunction with PACT (International Conference on Parallel Architectures and Compilation Techniques)**, pp. 19-24, Sept. 19, 2012. (paper)

46. R. Subramanian, R. Rosales, G. Fung, and J. Dy, *"Evaluating Crowdsourcing Participants in the Absence of Ground-Truth,*" **Workshop on Human Computation for Science and Computational Sustainability, held in conjunction with NIPS (International Conference on Neural Information Processing Systems)**, Lake Tahoe, Nevada, Dec. 7, 2012.

47. Y. Yan, R. Rosales, G. Fung , and J. Dy, *"Active Learning from Multiple Knowledge Sources,"* **2nd NIPS workshop on Computational Social Science and the Wisdom of Crowds**, 2011.

48. S. Kurugol, J. G. Dy, M. Rajadhyaksha, K. W. Gossage, J. Weissman, and D. H. Brooks. *"Semi-automated Algorithm for Localization of Dermal/ Epidermal Junction in Reflectance Confocal Microscopy Images of Human Skin,"* **In Proc. SPIE Photonics West**, San Francisco, USA, January 2011.

49. S. Kurugol, E. Bas, D. Erdogmus, J. Dy, G. C. Sharp, and D. Brooks, *"Centerline Extraction with Principal Curve Tracing to Improve 3D Level Set Esophagus Segmentation in CT Images,"* **Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE**, 2011.

50. S. Patel, B.-R. Chen, C. Mancinelli, S. Paganoni, L. Shih, L., M. Welsh, J. Dy, and P. Bonato, *"Longitudinal monitoring of patients with Parkinson's disease via wearable sensor technology in the home setting,"* **Engineering in Medicine and Biology Society, EMBC, 2011 Annual International Conference of the IEEE**, pp. 1552—1555, 2011.

51. Y. Guan, J. G. Dy, D. Niu, and Z. Ghahramani, *"Variational Inference for Nonparametric Multiple Clustering,"* **Workshop on Discovering, Summarizing and Using Multiple Clustering (MultiClust) at the International Conference on Knowledge Discovery and Databases**, 2010. *(Paper)*

52. S. Kurugol, J. G. Dy, G.C. Sharp, and D. H. Brooks, *"3D Level Set Esophagus Segmentation in Thoracic CT Images Using Spatial, Appearance and Shape Models,"* **IEEE International Symposium on Biomedical Imaging: From Nano to Macro**, *2010*, *ISBI*, 2010. *(Paper)*

53. S. Kurugol, N. Ozay, G. C. Sharp, J. G. Dy, and D. H. Brooks, *"3D Segmentation of Esophagus in Thoracic CT Images for Radiation Therapy Planning,"* **Proceedings of the XVIth International Conference on the Use of Computers in Radiation Therapy**, 2010. *(Paper)*

54. S. Patel, B. Chen, T. Buckley, R. Rednic, D. McClure, D. Tarsy, L. Shih, J. Dy, M. Welsh, and P. Bonato, *"Home Monitoring of Patients with Parkinson's Disease via Wearable Technology and a Web-based Application,"* **32nd Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC'10)**, 2010. *(Extended Abstract)*

55. S. Kurugol, J. G. Dy, M. Rajadhyaksha, and D. H. Brooks, ***"****Localizing the dermis/epidermis boundary in reflectance confocal microscopy images with a hybrid classification algorithm****,"*** **IEEE International Symposium on Biomedical Imaging: From Nano to Macro, 2009, ISBI**, pp. 1322-1325, June 28-July 1, 2009. *(Paper)*

56. S. Kurugol, G. Sharp, J. Dy, and D. Brooks, *"Esophagus Segmentation in Thoracic CT Images for Radiotherapy Planning,"* **American Association of Physicists in Medicine (AAPM) 51st Annual Meeting, Med. Phys.**, Vol. 36, Issue 6, pp. 2454-2454, June 2009. *(Abstract)*

57. Y. Cui and J. G. Dy, *"Orthogonal Principal Feature Selection,"* **Sparse Optimization and Variable Selection Workshop at the International Conference on Machine Learning,** Helsinki, Finland, July 9, 2008.

58. S. Kurugol, J. G. Dy, M. Rajadhyaksha, and D. H. Brooks, *"Detection of the dermis/epidermis boundary in reflectance confocal images using multi-scale classifier with adaptive texture features,"* **IEEE International Symposium on Biomedical Imaging: From Nano to Micro (ISBI)**, pp. 492-495, Paris, France, May 2008. *(Paper)*

59. S. Patel, R. Hughes, N. Huggins, D. Standaert, J. Growdon, J. Dy and P. Bonato, *"Using Wearable Sensors to Predict the Severity of Symptoms and Motor Complications in Late Stage Parkinson's Disease,"* **30th Annual International Conference of the IEEE Engineering in Medicine and Biology Society**, pp. 3686-3689 Aug 20-Aug 24, 2008, Vancouver, Canada.

60. S. Patel, K. Lorincz, R. Hughes, N. Huggins, J. Growdon, D. Standaert, J. Dy, M. Welsh and P. Bonato, *"A Body Sensor Network to Monitor Parkinsonian Symptoms: Extracting Features on the Nodes,"* **5th International Workshop on Wearable, Micro and Nano Technologies for the Personalized Health, pHealth** *2008*, May 21-23, 2008, Valencia, Spain.

61. J. Fan, X. Zhou, J. Dy, Y. Zhang and S. Wong, *"Spine Detection Using Curvilinear Structure Detector and Spine Tracking in In Vivo Image,"* **Third IEEE-NIH Life Science Systems and Application (LISA) Workshop**, November 2007. (*Paper*)

62. Y. Cui, J. G. Dy, G. C. Sharp, B. Alexander, and S. B. Jiang, *"Fluoroscopic Tracking of Lung Tumor Mass without Implanted Fiducial Markers,"* **American Association of Physicists in Medicine (AAPM) 48th Annual Meeting, Medical Physics**, Vol. 33, Issue 6, pp. 2162, Orlando, FL, July 30-August 3, 2006. (*Abstract*)

63. Y. Cui, J. G. Dy, G. C. Sharp, B. Alexander, and S. B. Jiang, *"Correlation Score Based Respiratory Gating for Lung Cancer Radiotherapy without Implanted Fiducial Markers,"* **American Association of Physicists in Medicine (AAPM) 48th Annual Meeting, Medical Physics**, Vol. 33, Issue 6, pp. 2244, Orlando, FL, July 30-August 3, 2006. (*Abstract*)

64. B. Cordes, J. Dy, M. Leeser, and J. Goebel, *"Enabling a Real-Time Solution for Neuron Detection with Reconfigurable Hardware,"* **IEEE International Workshop on Rapid System Prototyping**, pp. 128-134, 2005. (*Paper*)

65. J. G. Dy, C. E. Brodley, A. Kak, C. Shyu, and L. S. Broderick, *"The customized-queries approach to CBIR,"* **Proceedings of the Storage and Retrieval for Image and Video Databases VII, IS&T/SPIE Electronic Imaging '99**, Vol. 3656, pp. 22-32, January 1999, San Jose, CA. (*Paper*)

66. J. G. Dy and J. Allebach, *"Bitmap Resolution Synthesis,"* **1997 IEEE Workshop on Nonlinear Signal and Image Processing**, Grand Hotel on Mackinac Island, Michigan, September 8-10, 1997. (*Paper*)

GRANTS

EXTERNAL GRANTS:

NIH U24 CA264369-01A1: M-ISIC: A Multimodal Open-Source International Skin Imaging Collaboration Informatics Platform for Automated Skin Cancer Detection, $620,541, (PI: Veronica Rotemberg, MSKCC),
NU PI: Jennifer G. Dy
September 1, 2022-July 31, 2027.

Astrophysics, Inc.: Material Classification, Multi-Channel – Convolutional Neural Network ("MC2-CNN"), $500,000,
PI Michael Silevitch, co-PIs Octavia Camps, Jennifer Dy
April 1, 2022 – June 30, 2023.
NIH Systems Approaches to the Epidemiology, Genetics and Genomics of Lung Diseases, trainee stipend from Brigham and Women's Hospital, **$25,836**.

NIH/NHLBI (U01HL089856): Genetic Epidemiology of COPD (Phase 3)
(PI: Edwin Silverman and James Crapo),
NU-Subcontract from Brigham and Women's Hospital, **$959,370.**
NU PI: Jennifer G. Dy, Sept. 5, 2017 to July 31, 2022.
Role: Co-Investigator and NU Site PI.

NIH/NCI R01CA240771: Confocal Video-Mosaicking Microscopy to Guide Surgery of Superficially Spreading Skin Cancers, $1,441,862,
(PI: Milind Rajadhyaksha and Octavia Camps),
NU PI: Octavia Camps, co-I: Jennifer G. Dy and Dana Brooks
January 1, 2019 – December 31, 2023.

NSF (1835309) NCS-FO: Leveraging Deep Probabilistic Models to Understand the Neural Bases of Subjective Experience, $999,375.
PI: Jan-Willem van de Meent,
co-PIs: John Hutchinson, Sarah Ostadabbas, Ajay Satpute, Jennifer Dy
Aug. 15, 2018 – Aug. 14, 2021.

NSF CCF (1937500) RTML: Large: RUI: Efficient and Adaptive Real-Time Learning for Next Generation Wireless Systems, $1.0M.
PI: Stratis Ioannidis
Co-PIs: Kaushik Chowdhury, Jennifer Dy, Tommaso Melodia, Yanzhi Wang
Sept. 16, 2019- Sept. 15, 2022.

Army (ARI W911NF-16-1-0191): Individual Differences in Emotional Experience and Cognitive Performance: Confirmatory Data and Conceptual Extension, $1,556,394.
PI: Karen S. Quigley, co-PI: Jolie Wormwood, co-I: Lisa Feldman Barrett, Jennifer G. Dy
May 16, 2019 – May 15, 2022

DARPA-BAAHR001117S0043-FP-053: Deep Learning Convolutional Neural Networks for Radio Identification, $1,500,000.
PI: Kaushik Chowdhury, co-PI: Stratis Ioannidis, Jennifer Dy, Tommaso Melodia
April 1, 2018 to March 31, 2020. My share is $300,000.

NIH (1RO1MH113234-01): Affect Regulation and Beta Amyloid: Maturational Factors in Aging and Age-Related Pathology, $3,993,952.
PI: Lisa Feldman Barrett, Bradford Dickerson, Derek Isaacowitz; co-I: Dana Brooks, Jennifer Dy, Art Kramer, Stacy Marsella, Karen Quigley
04/01/2017-03/31/2022.

NSF BIGDATA:IA: Exploring Analysis of Environment and Health through Multiple Alternative Clustering, $860,648.
PI: Jennifer G. Dy, co-PIs: David Kaeli, April Gu
January 1, 2016 – December 31, 2019. My share is $292,620.

NSF SCH: INT: Collaborative Research: Assistive Integrative Support Tool for Retinopathy of Prematurity, $799,999.
PI: Stratis Ioannidis, co-PIs: Deniz Erdogmus, Jennifer G. Dy
Oct. 1, 2016 – September 30, 2020. My share is $260,000.

NIH/NCI (R01CA199673): Automated Image Guidance for Diagnosing Skin Cancer with Confocal Microscopy, $2,516,872,
(PI: Milind Rajadhyaksha and Jennifer G. Dy),
NU-Subcontract from Memorial Sloan Kettering Cancer Center, $972,332.
NU PI: Jennifer G. Dy, co-I: Dana Brooks
August 1, 2015 – July 31, 2019. My share is $583,399.

Army (ARI W911NF-16-1-0191): Individual Differences in Emotional Experience and Cognitive Performance, $1,113,183.
PI: Karen S. Quigley, co-PI: Jolie Wormwood, co-I: Jennifer Dy, Lisa Barrett
Nov. 1, 2015 – May 31, 2019.

NSF CyberSEES:Type 2: SEA-MASCOT: Spatio-temporal Extremes and Associations: Marine Adaptation and Survivorship under Changes in extreme Ocean Temperatures, $1,199,617.
PI: Jennifer G. Dy, co-PIs: Auroop Ganguly, Tarik Gouhier, Aidong Ding,
Sept. 1, 2014 – July, 31, 2019. My share is $338,013.

NIH/NHLBI (R01HL089856 & R01HL089857): Genetic Epidemiology of COPD
(PI: Edwin Silverman and James Crapo),
NU-Subcontract from Brigham and Women's Hospital, $926,757.
NU PI: Jennifer G. Dy, July 1, 2012 to June 31, 2017. My share is $926,757.
Role: Co-Investigator and NU Site PI.

NIH (NEI-1R21EY022387): Automated Classification of Retinopathy of Prematurity Using Machine Learning, $482,166.
PI: Jayashree Kalpathy-Cramer and Michael Chiang, I: Deniz Erdogmus and Jennifer Dy, Sept. 1, 2013 to Aug. 31, 2015.
NU-Subcontract from Oregon Health and Science University, $155,500.
NU I: Deniz Erdogmus and Jennifer G. Dy. My share is $74,815.
Role: Co-Investigator and NU Site co-PI.

NSF (IIS-0915910) III:Small: Exploring Data in Multiple Clustering Views, $470,112.
PI: Jennifer G. Dy, 100% participation, July 15, 2009 - June 30, 2013.

NIH Center for Integrative Biomedical Computing Supplement,
NU subaward, $100,000.
NU PI: Dana Brooks, co-PIs: Jennifer G. Dy and Deniz Erdogmus. 09/01/2011 - 08/31/2013. My share is 33%.

NIH: Novel Machine Learning Approaches for Automatic Labeling of Medical Text by Using Knowledge from Multiple Annotators, $377,968.
PI: Jennifer G. Dy, Oct. 1, 2010 – Sept. 30, 2012.

NSF CAREER: A Foundation for Unsupervised Learning of High-Dimensional Data, $507,394.
PI: Jennifer G. Dy, 100% participation, March 1, 2004 - February 28, 2009.

NSF: Student Travel Scholarships SIAM Conference on Data Mining, $26,010.
PI: Jennifer G. Dy, April 15, 2012 to March 31, 2014.

Unilever, Validating and Applying Machine-Learning Based Segmentation of Reflectance Confocal Microscopy Measurements of Skin for Large Datasets, $85,500.
PI: Dana Brooks, co-PI: Jennifer G. Dy, 50% participation. Oct. 15, 2009 – June 30, 2010.

Army STTR Phase II: In-Building Acoustic Signature Identification and Localization, $263,443.
PI: Michael Silevitch, co-PIs: David Brady and Jennifer G. Dy, 33% participation ($86,936).
August 31, 2006 – August 30, 2008.

BBN Technologies, $34,657.
PI: Jennifer G. Dy, 100% participation.
January 1, 2007 – August 31, 2007.

The Methodist Hospital Research Institute: Algorithms for Segmentation and Tracking of Neuron Images, $54,626.
PI: Jennifer G. Dy, 100% participation.
July 1, 2007 – June 30, 2009.

Harvard Medical School: Algorithms for Segmentation and Tracking of Neuron Images, $7,940.88.
PI: Jennifer G. Dy, 100% participation.
March 1, 2007 – June 30, 2007.

Mass. General Hospital: Algorithms for Tracking Tumors in Fluoroscopic Images, $4,078.

PI: Jennifer G. Dy, 100% participation.
July 1, 2006 – August 31, 2006.

Center for Subsurface Sensing and Imaging Systems (CenSSIS): Machine Learning Applied to Subsurface Images, $35,528.
Senior Investigator: Jennifer G. Dy, 100% participation.
January 2003 – October 2003.

EQUIPMENT GRANTS:

NSF Major Research Instrumentation: MRI: Enabling Research on Terabyte-Scale Datasets, $199,000.
PI: Gene Cooperman, co-PIs: Javed Aslam, Jennifer G. Dy, David Kaeli, Ravi Sundaram, 20% participation ($39,800).
August 1, 2006 – July 31, 2008.

Xilinx, Inc. Equipment Donation, $3,495.
Jan. 1, 2004 – Dec. 31, 2004. Jennifer G. Dy, 100% participation.

INTERNAL GRANTS:

Research and Scholarship Development Fund (RSDF) award: Identifying Metabolic Bottlenecks in the Production of Valuable Anti-Cancer Compounds from Catharanthus roseus Cell Cultures through Proteomics and Data Mining, $25,000.
PI: Carolyn Lee-Parsons,
co-PIs: Marina Hincapie, Tomas Rejtar, and Jennifer G. Dy, 25% participation.
July 2006 – December 2007.

Communications and Digital Signal Processing (CDSP) center seed grant: Automated Processing and Classification of Confocal Skin Images, $10,000.
PI: Jennifer G. Dy, 50% participation.
co-PIs: Dana Brooks, Milind Rajadhyaksha, and Dr. Allan Halpern.
May 1, 2006 – August 2006.

INVITED TALKS

- **NSF Workshop on Safety and Trust in Artificial Intelligence (AI) Enabled Systems**, held virtually, September 22-23, 2022.
- "How can learning from data help communicate information through visualization?" **Opportunities between AI and Visualization Workshop**, July 25, 2022.
- "Learning from Complex Medical Data, Clustering and Interpretable Kernel Dimensionality Reduction," **Oberwolfach Workshop Statistics meets Machine Learning**, Mathematisches Forschungsinstitut Oberwolfach, Germany, January 26-February 1, 2020.
- "Iterative Spectral Method for Alternative Clustering," **TTIC Workshop on Recent Trends in Clustering and Classification**, Toyota Technological Institute, Chicago, IL, September 18-20, 2019.
- "Learning from Complex Medical Data, Clustering and Interpretable Models," **Boston University**, Oct. 26, 2018.

- "Learning from Complex Medical Data, Clustering and Interpretable Models," **Women in Big Data Workshop**, Zurich, Switzerland, June 14-15, 2018.
- "Learning from Complex Data," **IJCAI Workshop on Semantic Machine Learning,** New York, July 10, 2016.
- "Discovering Disease Subtypes from Data," **IEEE High Performance Extreme Computing Conference (HPEC)**, September 15-17, 2015.
- "Learning in Complex Data," **New England Machine Learning Day (NEML)**, May 18, 2015.
- "Exploratory Data Analysis, Clustering, and Learning from the Crowd," **Research @ Google**, Cambridge, January 7, 2016.
- "Exploratory Data Analysis, Clustering, and Subtype Discovery," **UMass Boston**, November 2, 2015.
- "Machine Learning, Clustering, and Subtyping," Channing Division of Network Medicine, Brigham and Women's Hospital, **Harvard Medical School**, Feb. 24, 2015.
- "Active Learning from Uncertain Crowd Annotations," Crowdsourcing Session, 52nd Annual **Allerton Conference on Communication, Control, and Computing**, University of Illinois at Urbana-Champaign, Oct. 1-3, 2014.
- "Discovering Subtypes of Disease Trajectories and Learning from the Crowd," **Meaningful Use of Complex Medical Data (MUCMD)**, Aug. 8-9, 2014.
- "Learning from Unlabeled Data and Experts that Maybe Uncertain," **Indo-American Frontiers of Engineering Symposium, National Academy of Engineering**, May 19-21, 2014.
- "Brief Tutorial on Clustering and Machine Learning," **International COPD Genetics Conference**, Amsterdam, Netherlands, Sept. 27-28, 2012.
- "Machine Learning Algorithms for Biomedical Data, Learning from the Crowd," ADSA08 Workshop, **Northeastern University**, Oct. 25, 2012.
- "Novel Machine Learning Approaches for Automatic Labeling of Medical Text by Using Knowledge from Multiple Annotators," **NIH NLM**, June 17-19, 2012.
- "Novel Machine Learning Approaches for Automatic Labeling of Medical Text by Using Knowledge from Multiple Annotators," **NIH NLM**, June 2011.
- "Machine Learning in Bio-Medical Applications," CDSP Workshop**, Northeastern University**, April 2010.
- "Non-Redundant Multi-View Clustering," Center for Applied Mathematics Colloquium, **Cornell**, Ithaca, NY, April 18, 2008.
- "Clustering High-Dimensional Data," **BBN**, Oct. 27, 2006.
- "Clustering High-Dimensional Data," **Workshop for Women in Machine Learning**, Oct. 4, 2006.
- "Clustering High-Dimensional Data," Electrical and Computer Engineering Colloquium (jointly held with Computer Science Colloquium), **Tufts University**, April 18, 2006.
- "Algorithms for Tumor Tracking in Image Guided Radiotherapy," CDSP Workshop, **Northeastern University**, March 3, 2007.
- "Clustering High-Dimensional Data and Multi-Class Support Vector Machines," **Motorola**, August 25, 2005.
- "Clustering High-Dimensional Data," **Boston University,** Nov., 2004.
- "Clustering High-Dimensional Data," CDSP Workshop, **Northeastern University**, April 2005.
- "Machine Learning and Content-Based Image Retrieval," **Memorial Sloan-Kettering Cancer Center**, July, 2004.
- "Feature Selection for Unsupervised Learning Applied to Content-Based Image Retrieval," **CCIS, Northeastern University**, March, 2004.
- "Feature Selection for Unsupervised Learning Applied to Content-Based Image Retrieval," Statistical AI Reading Group, **Massachusetts Institute of Technology**, June 27, 2002.

- "Feature Selection for Unsupervised Learning Applied to Content-Based Image Retrieval," Information and Computer Science, **University of California, Irvine**, January 9, 2001.
- "Feature Selection for Unsupervised Learning", Department of Computer Science, **Oregon State University**, November 20, 2000.
- "Feature Selection and Interactive Visualization for Unsupervised Learning", **Silicon Graphics**, October 6, 2000.

INVITED PANEL

- "Panel topic: What can I do with a Ph.D.? Perspectives on research, teaching, and industry careers," **Young Professionals Panel, AAAI(American Association for Artificial Intelligence)/SIGART(ACM Special Interest Group on Artificial Intelligence) Doctoral Consortium 2006**, July 17, 2006.

GRADUATE/UNDERGRADUATE STUDENTS AND POSTDOCS:

Current Ph.D. Students:

Brandon Dominique, Masih Eskandar, Davin Hill, Aria Masoomi, Max Torop, Zifeng Wang, Tooba Imtiaz, Joshua Bone, Elifnur Sunger.

Current Postdocs:

Sandesh Ghimire, Chieh Wu, Ayan Paul, Matthew Applegate, Candice Byers

Former Postdocs:

Jaume Coll-Font, Jamshid Sourati, Andrey Gritsenko, Tingting Zhao

Ph.D. Graduates:

1. Ting Su (April 2007).
   Thesis: *Clustering High-Dimensional Data*
   She is currently at Mathworks.
2. Ying Cui (Nov. 2008).
   Thesis: *Non-Redundant Clustering, Principal Feature Selection and Learning Methods Applied to Lung Tumor Image-Guided Radiotherapy*
   She is now at Apple.
3. Volkan Vural (Jan. 2009).
   Thesis: *Improving Large Margin Classifiers using Relationships among Samples*
   He is currently at Eze Software Group.
4. Sila Kurugol (Aug. 2011)
   Thesis: *Machine Learning and Model Based 3D Segmentation Algorithms for Challenging Medical Imaging Problems*
   She is currently a Post-Doc at Boston Children's Hospital.
5. Shyamal Patel (April 3, 2012)
   Thesis: *Quantitative Motor Assessment in Patients with Mobility Limiting Conditions using Wearable Sensors*
   He is now a Research Coordinator at Spaulding Rehabilitation Hospital.
6. Yue Guan (March 12, 2012)
   Thesis: *Bayesian Models for Unsupervised Feature Selection*
   He is now at Tremor Video.
7. Donglin Niu (Sept. 17, 2012)
   Thesis: *Multiple Alternative Clusterings and Dimensionality Reduction*
   He is now at Yahoo!
8. Yan Yan (Sept. 17, 2012)
   Thesis: *Learning from Imperfect and Related Labels*

He is now at Yahoo! Labs.

9. Jing Fan (April 26, 2013)
   Thesis: *Understanding Neurodegenerative Disease with Multi-Scale Images – An Integrated Neural Image Analysis System*
   He is currently at Humana.
10. James Ross (June 24, 2014)
    Thesis: *Probability Models and Bayesian Nonparametrics for Subtyping Chronic Obstructive Pulmonary Disease*
    He is now at Harvard Medical School.
11. Sindhu Ghanta (Dec. 3, 2014)
    Thesis: *Bayesian Nonparametrics and Marked Poisson Processes*
    She did a Post-Doc at Harvard Medical School and is now working at Parallel Machines.
12. Jamshid Sourati (Nov., 2016)
    Thesis: *Information Theoretic Active Learning in Unsupervised and Supervised Problems*
    He is currently a Post-Doc at Northeastern University.
13. Sarah Brown (Nov., 2016)
    Thesis: *Machine Learning for Computational Psychology*
    She is now a Chancellor's Postdoctoral Fellow at the University of California, Berkeley.
14. Uri Peer (February, 2017)
    Thesis: *Automated Target Detection for Geophysical Applications*
    He currently works at Geophysical Survey Systems, Inc. (GSSI).
15. Yale Chang (Nov., 2017)
    Thesis: *Clustering with Flexible Constraints and Application to Disease Subtyping*
    He is now at Philips Research.
16. Junxiang Chen (Aug., 2018)
    Thesis: *Interpretable Clustering Methods*
    He is currently a postdoc at University of Pittsburgh.
17. Alican Bozkurt (March 2020)
    Thesis: *Deep Representation Learning for Complex Medical Images*
    He is now at Paige AI.
18. Setareh Ariafar (March 2020)
    Thesis: *Practical Bayesian Optimization: Tackling Black-box Constraints & Managing Computational Burden*
    She is currently at Google Brain.
19. Chieh Wu (August 2020)
    Thesis: *Learning Representations via Kernel Dependence Measure*
    He is currently a postdoc at Northeastern University.
20. Ilkay Yildiz (April 2021)
    Thesis: *Spectral Ranking Regression*
    Advisors: Stratis Ioannidis, Deniz Erdogmus, Jennifer Dy
    She is currently working at BioSensics.
21. Yumin Liu (June 2021)
    Thesis: *Learning from Spatio-Temporal Data with Applications in Climate Science*
    He is currently working at Amazon.
22. Zulqarnain Qayyum Khan (July 2022)
    Thesis: *Interpretable Machine Learning for Affective Psychophysiology and Neuroscience*
    He is currently a Research Scientist at The Institute for Experiential AI, Roux Institute, Northeastern University, Portland, Maine.

M.S. Graduates:

1. Ting Su (May 2003).

Project: *Non-Random Initialization Method for K-Means Clustering*

2. Volkan Vural (April 2004).
   Project: *A Hierarchical Method for Multi-Class Support Vector Machines*
3. Hongyan Liu (April 2005).
   Project: *A Comparative Study of Feature Subspace Selection Algorithms for Unsupervised Learning*
4. Jing Fan (August 2009)
   Project: *An Automated Pipeline for Dendrite Spine Detection and Tracking of 3D Optical Microscopy Neuron Images of in vivo Mouse Models*
5. Yan Yan (August 2009)
   Project: *Machinery Classification from Vibrational Measurements*
   Co-Advised with Prof. David Brady
6. Mahdokht Masaeli (August 2009)
   Project: *Convex Principal Feature Selection*
7. Carolyn Buractaon (May 2011)
   Project: *A Practical Approach to Markerless Fluoroscopic Gating for Lung Cancer Radiotherapy using Active Learning*
8. Sarah Brown (July 2013)
   Thesis: *Machine Learning Analysis of Peripheral Physiology for Emotion Detection*
9. Xiaoran An (May 2014)
   MS in Operations Research
   Project: *Tracking Climate Change Opinions from Twitter Data*
10. Lei Hou (Dec. 2014)
    Project: *Improving Clustering Reliability of High-Dimensional Time-Series Data in Toxicogenomics using Locality Preserving Projections*
11. Payden McBee (April 2017)
    Thesis: *Image-Based Indicators of Crime and Economic Well-Being in Sub-Saharan Africa*
    (Draper Fellow)
12. Maria Perez Rosero (June 2017)
    Thesis: *Stability of Marine Communities in Response to Climate Change*
    (Fulbright Scholar)
13. Marissa D'Alonzo (April 9, 2020)
    Thesis: *Semantic Segmentation of Reflectance Confocal Microscopy Mosaics of Pigmented Lesions using Weak Labels*

Undergraduate Project Advising:

1. Sufeng Li (April 2005).
   Honors Research Project: *A Graphical User Interface for Medical Image Retrieval*
   Supported by the Northeastern University's Matthews Award.
   She is currently pursuing graduate studies at Stanford University.
2. Amanda Funai (Dec. 2004).
   Research Project: *Feature Selection and Clustering Visualization Toolbox*
   Supported by my NSF Career Award.
   She pursued her Ph.D. degree at University of Michigan, Ann Arbor, and was awarded with an NSF Graduate Research Fellowship in 2007.
3. Michael Mazzello
   Research Project: *Radioisotope Detection*
   Supported by CENSSIS.
4. Ben Caine
   Independent Study: *Machine Learning for Modeling Emotion from Physiological Signals*

5. Michael Lin
   Research Project: *Machine Learning Applied to Affect Analysis*
6. Julia Spinelli
   Research Project: *Machine Learning and Data Mining Applied to Biomedical Imaging*
   REU student.
7. Trevor Gale
   Research Project: *Delineation of Skin Strata in Reflectance Confocal Microscopy Images with Recurrent Convolutional Networks*
   Will be pursuing his Ph.D. at Stanford University. Currently in the Google AI Residency Program.

Ph.D. Thesis Committees:

1. Juan Carlos Rojas (Thesis, Aug. 2003). *"Multimedia Macros for Portable Optimized Programs."* Advisor: Miriam Leeser
2. Anupama Jagannathan (Proposal, Nov. 2004; Thesis, Aug. 2005). *"Segmentation and Recognition of 3D Point Clouds within Graph-theoretic and Thermodynamic Frameworks."* Advisor: Eric Miller
3. Yijian Wang (Proposal, June 2005; Thesis, Dec. 2006). *"Modeling and Acceleration of File-I/O Dominated Parallel Workloads."* Advisor: David Kaeli
4. Ashley Tarokh (Proposal and Thesis, Aug. 2005). *"Shape-Based Methods for Linear Inverse Scattering Problems."* Advisor: Eric Miller
5. Alireza Aliamiri (Proposal and Thesis, Dec. 2006. *"Statistical Methods for Unexploded Ordnance Discrimination."* Advisor: Eric Miller
6. Haiqian Yu (Proposal, Mar. 2005; Thesis, Dec. 2006). *"Optimizing Data Intensive Window-based Image Processing on Reconfigurabl Hardware Boards."* Advisor: Miriam Leeser
7. Bing Zhang (Proposal, Aug. 2006; Thesis, April 2007). *"Discriminative Feature Optimization for Speech Recognition."* Advisors: John Makhoul and Gene Cooperman
8. Mei Li (Proposal, Dec. 2006; Thesis, Aug. 2007). *"Symbolic Reasoning About Dynamic Systems in Conflict Alert Situations."* Advisor: Mitch Kokar
9. John Oldham (Proposal, Feb. 2006). *"Proteomic Investigation of the Relationship between Primary and Secondary Metabolism in Plants and Plant Cell Culture."* Advisor: Carolyn Lee-Parsons
10. Lucio Cetto (Thesis, July 2007). *"Analysis of DNA Chromatograms for Base Calling Using Unsupervised Statistical Learning Methods."* Advisor: Elias Manolakos
11. Xiaojun Wang (Thesis, Dec. 2007). *"Variable Precision Floating-Point Divide and Square Root for Efficient FPGA Implementation of Image and Signal Processing Algorithms."* Advisor: Miriam Leeser
12. Keary Helen LeBeau (Thesis, April 2008). *"A Bi-Directional Model for Load Rating Applied to a Prestressed Concrete Bridge Beam."* Advisor: Sara Wadia-Fascetti.
13. Robert Linnehan (Proposal, Nov. 2007; Thesis, July 2008). *"Performance Bounds and New Detection Methods for Synthetic Aperture Radar."* Advisor: David Brady
14. Jie Cheng (Proposal, Dec. 2007; Thesis, April 2009). *"Automated Detection and Time Lapse Analysis of Dendritic Spines in Laser Scanning Microscopy Images."* Advisor: Eric Miller
15. Cheng Wu (Thesis, April 9, 2010). *"Novel Function Approximation Techniques for Large-Scale Reinforcement Learning,"* Advisor: Waleed Meleis
16. Erhan Bas (Thesis, Aug. 2011). *"Extracting Structural Information on Manifolds from High Dimensional Data and Connectivity Analysis of Curvilinear Structures in 3D Biomedical Images."* Advisor: Deniz Erdogmus
17. Tian Lan (Thesis, Oct. 2011). *"Extraction, Feature Selection and Dimensionality Reduction Techniques for Brain Computer Interfaces."* Advisor: Deniz Erdogmus

18. Mustafa Ayazoglu (Proposal, Dec. 2011; Thesis, June 14, 2012). *"Fast Sparse Subspace Identification Tools with Applications to Dynamic Vision."* Advisor: Mario Sznaier
19. Fatemeh Azmandian (PhD Proposal, Oct. 2011; Thesis, July 26, 2012). *"Learning at the Virtualization Layer: Intrusion Detection and Workload Characterization from within the Virtual Machine Monitor"* Advisor: David Kaeli
20. Alexandru Vasile (PhD Proposal, April 2, 2013; Thesis, Dec. 2, 2014) *"Hierarchical Image Geo-Location on a World-Wide Scale."* Advisor: Octavia Camps
21. Noushin Golabchi (PhD Proposal, 1/2012; Thesis, Aug. 22, 2013). *"Graphical model based segmentation of massive numbers of irregular small objects in images, with application to axon characterization in histological sections,"* Advisor: Dana Brooks
22. Sidi Niu (Proposal, June 2012; Thesis April 18, 2013). *"Quantification of Chemical Gaseous Plumes on Hyperspectral Imagery."* Advisor: Vinay Ingle
23. Jennifer Mankin (PhD Proposal, 9/2012; Sept. 26, 2013) *"Classification of Malware Persistence Mechanisms using Low-Artifact Disk Instrumentation."* Advisor: David Kaeli
24. Curtis Watson (PhD Thesis, Sept. 12, 2013) *"Signal Detection and Digital Modulation Classification-Based Spectrum Sensing for Cognitive Radio."* Advisor: Waleed Meleis
25. Sheng You (PhD Proposal, 11/5/2012; Thesis, March 31, 2014) *"Automatic sublingual microcirculatory image analysis and quantitative assessment of the microcirculation,"* Advisor: Deniz Erdogmus
26. Binlong Li (PhD Proposal, 12/18/2012; Thesis, June 14, 2013). *"Dynamics-Based Invariants for Video Analytics,"* Advisor: Octavia Camps
27. Umut Orhan (PhD Thesis, Dec. 4, 2013). *"RSVP Keyboard: An EEG Based BCI Typing System with Context Information Fusion."* Advisor: Deniz Erdogmus
28. Fei Xiong (PhD Proposal, June 2013; Thesis, April 7, 2014). *"Manifold Embedding with Dynamic and/or Classification Supervision,"* Advisor: Octavia Camps
29. Kang Li (PhD Proposal, April 15, 2014; Thesis, Sept. 4, 2014). *"Video Event Recognition and Prediction Based on Temporal Structure Analysis,"* Advisor: Raymond Fu
30. Ming Shao (PhD Proposal, April 15, 2014). *"Leveraging the Structure of Visual Data for Social Media Analytics,"* Advisor: Raymond Fu
31. Yongfang Cheng (PhD Proposal, Dec. 11, 2014). "Polynomial Optimization Techniques in Subspace Clustering," Advisor: Mario Sznaier
32. Ye Zhao (PhD Proposal, Dec. 17 2014). "Fault Detection, Classification and Protection in Solar Photovoltaic Arrays," Advisor: Brad Lehman
33. Nastaran Ghadar (PhD Proposal, Nov. 12, 2014). "Automatic Recognition of Primate Behaviors and Social Interactions from Videos," Advisor: Deniz Erdogmus

M.S. Thesis Committees:

1. Michael Estlick (Aug. 2002). "*An FPGA Implementation of the K-Means Algorithms for Image Processing."* Advisor: Miriam Leeser
2. Haiqian Yu (Aug. 2003). *"Memory Architecture for Data Intensive Image Processing Algorithms in Reconfigurable Hardware."* Advisor: Miriam Leeser
3. Shawn Miller (April 2004). *"Enabling a Real-time Solution to Retinal Vascular Tracing Using FPGAs."* Advisor: Miriam Leeser
4. Evangelia Komisopoulou (July 2004). *"Clustering Methods For Accurate Background/Foreground Estimation in cDNA Microarray Images."* Advisor: Elias Manolakos
5. Anita Thomas (Aug. 2004). *"Value Prediction with Perceptrons."* Advisor: David Kaeli
6. Govindarajan Thattai (Aug. 2004). *"Discriminative Initialization methods to HMM parameter estimation for Speech recognition."* Advisor: John Makhoul
7. Sushanth Dabbiru (Nov. 2004). *"Statistical Modeling for Story Segmentation of Audio Broadcasts."* Advisor: John Makhoul

8. Hardik Virani (April 2005). *"Self-Organizing Feature Maps combined with Ecological Ordination Techniques for Effective Watershed Management."* Advisor: Elias Manolakos
9. Guruprasad Saikumar (Aug. 2005). *"MMI Training for Automatic Segmentation of Conversational Telephone Speech."* Advisor: John Makhoul
10. Fatemeh Azmandian (Jan. 2008). *"The Chart Checker: Applying Data Mining Techniques to Detect Major Errors in Radiotherapy Treatment Charts."* Advisor: David Kaeli
11. Harish Kashyap Krishnamurthy (April 2009). *"Study of Algorithms to Combine Multiple Automatic Speech Recognition (ASR) System Outputs."* Advisor: John Makhoul
12. Minyang Huang (MS Thesis, April 2011). *"Dynamic Based Video Data Registration."* Advisor: Octavia Camps
13. Teresa Mao (MS Thesis, Dec. 2011). *"Dynamics Based Approach for Human Activity Understanding."* Advisor: Octavia Camps
14. Jennifer Rogers (March 2012). *"Change Detection Using Linear Prediction in Hyperspectral Imagery."* Advisor: Vinay Ingle
15. Eric Truslow (July 2012). *"Performance Evaluation of the Adaptive Cosine Estimator Detector for Hyperspectral Imaging Applications."* Advisor: Vinay Ingle
16. Hanjiao Qiu (April 10, 2014). *"Managing Bulk Sensor Data for Heterogeneous Distributed Sensor Systems."* Advisor: Gunar Schirner
17. Xiangyu Li (MS Thesis, July 31, 2014). "Accelerating Mahout On Heterogeneous Clusters Using HadoopCL," Advisor: David Kaeli