

# Brian Kulis

Department of Electrical and Computer Engineering  
Boston University  
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## *Research Interests*

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Machine learning; large-scale data analysis; statistics; numerical optimization; applications to computer vision, audio, and other domains

## *Education*

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- **Ph.D. Computer Science** **University of Texas at Austin**  
August, 2003 - November, 2008  
Thesis: *Scalable Kernel Methods for Machine Learning*  
Research Advisor: Inderjit S. Dhillon  
Graduate GPA: 4.0 / 4.0
- **B.A. Computer Science and Mathematics** **Cornell University**  
August, 1999 - May, 2003  
Graduated With Honors

## *Professional Experience*

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- **Associate Professor** **Boston University**  
Department of Electrical and Computer Engineering  
Department of Computer Science (affiliated)  
Division of Systems Engineering (core member)  
5/2018 -  
Faculty of Computing and Data Sciences (affiliated)  
10/2020 -  
Boston, MA
- **Amazon Scholar** **Amazon Inc.**  
Amazon Alexa  
Cambridge, MA  
7/2019 -
- **Peter J. Levine Career Development Assistant Professor** **Boston University**  
Department of Electrical and Computer Engineering  
7/2015 - 5/2018  
Department of Computer Science (affiliated)  
7/2015 - 5/2018  
Division of Systems Engineering (core member)  
9/2016 - 5/2018  
Boston, MA

- **Assistant Professor**  
 Department of Computer Science and Engineering  
 Department of Statistics  
 1/2012 -6/2015

**Ohio State University**  
 Columbus, OH
- **Postdoctoral Fellow**  
 EECS Department & International Computer Science Institute  
 1/2009 - 12/2011

**UC Berkeley**  
 Berkeley, CA
- **Research Fellow**  
 Institute for Pure & Applied Mathematics  
 9/2007 - 12/2007

**UCLA**  
 Los Angeles, CA
- **Research Intern**  
 6/2006 - 9/2006

**Microsoft Research**  
 Redmond, WA
- **Research Assistant**  
 Department of Computer Sciences  
 1/2004 - 12/2008

**University of Texas at Austin**  
 Austin, TX
- **Research Assistant**  
 Department of Computer Science  
 9/2001 - 6/2003

**Cornell University**  
 Ithaca, NY

## *Teaching Experience*

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- **Instructor**  
 9/2021 - 12/2021  
 1/2021 - 5/2021  
 1/2019 - 5/2019  
 Introduction to Machine Learning (Undergraduate Level)

**Boston University**
- **Instructor**  
 1/2022 - 5/2022  
 8/2020-12-2020  
 8/2018-12/2018  
 1/2017-5/2017  
 Deep Learning (Graduate Level)

**Boston University**
- **Instructor**  
 1/2018 - 5/2018  
 1/2017 - 5/2017  
 8/2016 - 12/2016  
 Advanced Data Structures and Algorithms (Graduate Level)

**Boston University**
- **Instructor**  
 8/2014-12/2014  
 1/2014-4/2014  
 Survey of Artificial Intelligence II (Undergraduate and Graduate Level)

**Ohio State University**
- **Instructor**  
 1/2013-4/2013  
 Machine Learning (Undergraduate and Graduate Level)

**Ohio State University**
- **Instructor**  
 8/2012-12/2012  
 Probabilistic Graphical Models (Graduate Level)

**Ohio State University**

- **Instructor** **Ohio State University**  
 1/2015-5/2015  
 3/2012-6/2012  
 Bayesian Modeling and Inference (Graduate Level)
- **Teaching Assistant** **University of Texas at Austin**  
 1/2007 - 5/2007  
 Data Mining: A Statistical Learning Perspective (Graduate Level)  
 Supervising professor: Inderjit Dhillon.
- **Teaching Assistant** **University of Texas at Austin**  
 9/2006 - 12/2006  
 Machine Learning (Graduate Level)  
 Supervising professor: Raymond Mooney.
- **Teaching Assistant** **University of Texas at Austin**  
 9/2004 - 12/2004  
 Large-scale Data Mining (Graduate Level)  
 Supervising professor: Inderjit Dhillon.
- **Teaching Assistant** **Cornell University**  
 1/2003 - 5/2003  
 Introduction to Algorithms (Undergraduate Level)  
 Supervising professors: Jon Kleinberg and Eva Tardos.
- **Teaching Assistant** **Cornell University**  
 9/2002 - 12/2002  
 Introduction to the Theory of Computing (Undergraduate Level)  
 Supervising professor: John Hopcroft.

## *Funding*

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- Department of Defense (subcontract through MIT Lincoln Labs), “Learning f-Divergences”, 2021–2025, Total BU Award to Date: \$127,000
- Department of Energy, “AI-based Scalable Analytics for Improving Performance, Resilience, and Security of HPC Systems”, 2021–2026, Total Award: \$490,000
- Amazon AWS, “Deep Learning for Structured Automatic Music Generation”, 2021, Total Award: \$50,000
- Hariri Institute Research Incubation Award, “Multiscale Modeling of Complex Interfaces Aided by Machine Learning,” 2020–2021, Total Award: \$54,950
- NSF IIS RI:Small, “Hard Clustering via Bayesian Nonparametrics”, Award 1217433, 2012–2015, Total Award: \$440,000
- NSF CAREER, “Rich and Scalable Optimization for Modern Bayesian Nonparametric Learning”, Award 1452903, 2015–2020, Total Award: \$486,000
- Peter J. Levine Career Development Award, 2015-2018, Total Award: \$90,000
- Verisk Analytics, “Generative Adversarial Networks for Discrete Data”, 2017-2018: \$40,000

## *Advising*

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- **Ph. D. Students**

Ke Jiang (2011-2017; after OSU: Data Scientist at Microsoft), Anirban Roychowdhury (2012-2017; after OSU: Research Scientist at Facebook), Robert Finn (2013-2017; after OSU: Assistant Professor, St. Peters University), Andrew Cutler (2016-2020; after BU: REACT Neuro), Xide Xia (2016-2020; after BU: Facebook AI Research), Ali Siahkamari (2016-2021; after BU: JP Morgan Chase), Kubra Cilingir (2016-), Sadie Allen (2021-), Christopher Liao (2021-)

- **Masters Students**

Siddharth Singh (2011-2013; after OSU: IBM, then Amazon), Ye Liu (2012-2014; after OSU: PhD student at University of Michigan), Jiaxin Zhang (2012-2014; after OSU: Google), Xiangyang Zhou (2013-2016; after OSU: Google), Siva Sankarapandian (2016-2018; after BU: Proscia Inc.), Tayler Pauls (2018-2019; after BU: startup), Yousif Khairuddin (2020-2021), Krishna Palle (2020-2021)

- **Undergraduate Students**

Elizabeth Burl (B.S. 2015; after OSU: Google), Vijay Thakkar (2017-2019; after BU: graduate student at Georgia Tech), Rachel Manzelli (2017-2019; after BU: machine learning engineer at Marlo Inc.), Natalia Frumkin (2019-2020; after BU: PhD student at UT Austin)

## *Major Honors and Awards*

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- Peter J. Levine Career Development Professorship 2015
- NSF CAREER Award 2015
- Best Student Paper Award, 2008 IEEE Conference on Computer Vision and Pattern Recognition 2008
- Best Student Paper Award, 2007 International Conference on Machine Learning 2007
- Best Student Paper Award, 2005 International Conference on Machine Learning 2005
- MCD Fellowship from the University of Texas at Austin 2003
- Award of Excellence from College of Natural Sciences at the University of Texas at Austin 2003

## *Service*

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- **Senior Program Committee**

- (Senior) Area Chair, AAAI Conference on Artificial Intelligence 2023
- Area Chair, Advances in Neural Information Processing Systems (NeurIPS) 2022
- Area Chair, International Conference on Machine Learning (ICML) 2022
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2022
- (Senior) Area Chair, AAAI Conference on Artificial Intelligence 2022
- Area Chair, International Conference on Learning Representations (ICLR) 2022
- Area Chair, Advances in Neural Information Processing Systems (NeurIPS) 2021
- Area Chair, International Conference on Machine Learning (ICML) 2021
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2021
- (Senior) Area Chair, AAAI Conference on Artificial Intelligence 2021
- Area Chair, International Conference on Learning Representations (ICLR) 2021
- Area Chair, Advances in Neural Information Processing Systems (NeurIPS) 2020
- Area Chair, International Conference on Machine Learning (ICML) 2020

- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2020
- (Senior) Area Chair, AAAI Conference on Artificial Intelligence 2020
- Area Chair, Advances in Neural Information Processing Systems (NeurIPS) 2019
- Area Chair, International Conference on Machine Learning (ICML) 2019
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2019
- Area Chair, Advances in Neural Information Processing Systems (NIPS) 2018
- Area Chair, International Conference on Machine Learning (ICML) 2018
- SPC, AAAI Conference on Artificial Intelligence 2018
- Area Chair, Advances in Neural Information Processing Systems (NIPS) 2017
- Area Chair, International Conference on Machine Learning (ICML) 2017
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2017
- Area Chair, International Conference on Machine Learning (ICML) 2016
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2016
- Area Chair, International Conference on Machine Learning (ICML) 2015
- Area Chair, International Conference on Artificial Intelligence and Statistics (AISTATS) 2015
- Area Chair, Advances in Neural Information Processing Systems (NIPS) 2014
- Area Chair, International Conference on Machine Learning (ICML) 2014
- Local Arrangements Chair, IEEE Conference on Computer Vision and Pattern Recognition (CVPR) 2014
- Area Chair, International Conference on Machine Learning (ICML) 2013

- **Editorial Board**

- Associate Editor, Computer Vision and Image Understanding (2016-2019)
- Associate Editor, Transactions on Machine Learning Research (2022-2025)

- **Program Committee**

- International Conference on Artificial Intelligence and Statistics (AISTATS) (2013–2014)
- International Conference on Machine Learning (ICML) (2009–2012)
- IEEE Conference on Computer Vision and Pattern Recognition (CVPR) (2009–2013)
- International Conference on Computer Vision (ICCV) (2009, 2011)
- European Conference on Computer Vision (ECCV) (2010, 2014)
- ICDM Workshop on Optimization Methods for Emerging Data Mining Problems (OEDM) (2009–2011)

- **Journal Reviewing**

- IEEE Transactions on Pattern Analysis and Machine Intelligence
- Journal of Machine Learning Research
- International Journal on Computer Vision
- IEEE Transactions on Neural Networks
- Machine Learning Journal

- **Conference Reviewing**

- Neural Information Processing Systems (NIPS) (2006–2013, 2015–2016)
- International Conference on Machine Learning (ICML) (2005–2008)
- Uncertainty in Artificial Intelligence (UIAI) (2015–2016)
- ACM SIGKDD Conference (2004–2009)

- SIAM Data Mining Conference (SDM) (2004–2007)
- IEEE International Conference on Data Mining (ICDM) (2004–2005)
- World Wide Web Conference (WWW) (2007)

- **Grant Reviewing**

- Panelist for the National Science Foundation (2013–2016)
- External Reviewer for the Swiss National Science Foundation

- **Workshop and Meeting Organization**

- ICML 2022 Workshop: “Machine Learning for Audio Synthesis” (with Sadie Allen, Sander Dieleman, Rachel Manzelli, and Yu Zhang)
- ICML 2019 Workshop: “Joint Workshop on On-Device Machine Learning & Compact Deep Neural Network Representations (ODML-CDNNR)” (with Sujith Ravi, Zornitsa Kozareva, Lixin Fan, Max Welling, Yurong Chen, Werner Bailer, Haoji Hu, Jonathon Dekhtiar, Yingyan Lin, and Diana Marculescu)
- Co-chair, BU Data Science Day 2018
- ICCV 2013 Workshop: “VisDA: 1st International Workshop on Visual Domain Adaptation” (with Ruonan Li, Kate Saenko, and Fei Sha)
- NIPS 2011 Workshop: “Beyond Mahalanobis: Supervised Large-scale Learning of Similarity” (with Dhruv Batra, Greg Shakhnarovich, and Kilian Weinberger)
- ICCV 2011 Workshop: “Kernels and Distances in Computer Vision” (with Peter Gehler and Christoph Lampert)

- **Tutorial Organization**

- ECCV 2010 Tutorial: “Distance Functions and Metric Learning” (with Ofir Pele and Michael Werman)
- ICML 2010 Tutorial: “Metric Learning”

## *Publications*

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- **Journal Publications**

1. T. Campbell, B. Kulis, and J. How. *Dynamic Clustering Algorithms via Small-Variance Analysis of Markov Chain Mixture Models*. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 41, No. 6, pp. 1338–1352, 2019.
2. J. Hoffman, E. Rodner, J. Donahue, B. Kulis, and K. Saenko. *Asymmetric and Category Invariant Feature Transformations for Domain Adaptation*. International Journal of Computer Vision (IJCV), Vol. 109, Nos. 1-2, pp. 28–41, 2014.
3. B. Kulis. *Metric Learning: A Survey*. Foundations and Trends in Machine Learning, Vol. 5, No. 4, pp. 287–364, 2012.
4. B. Kulis and K. Grauman. *Kernelized Locality-Sensitive Hashing*. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 34, No. 6, pp. 1092–1104, 2012.
5. P. Jain, B. Kulis, J. Davis, and I. Dhillon. *Metric and Kernel Learning using a Linear Transformation*. Journal of Machine Learning Research, Vol. 13, pp. 519–547, 2012.
6. B. Kulis, P. Jain, and K. Grauman. *Fast Similarity Search for Learned Metrics*. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 31, No. 12, pp. 2143–2157, 2009. (Spotlight Paper, Dec. 2009 Issue)
7. B. Kulis, M. Sustik, and I. Dhillon. *Low-Rank Kernel Learning with Bregman Matrix Divergences*. Journal of Machine Learning Research, Vol. 10, pp. 341–376, 2009.

8. B. Kulis, S. Basu, I. Dhillon, and R. Mooney. *Semi-supervised Graph Clustering: A Kernel Approach*. Machine Learning, Vol. 74, No. 1, pp. 1–22, 2009. (Invited Paper)
9. I. Dhillon, Y. Guan, and B. Kulis. *Weighted Graph Cuts without Eigenvectors: A Multilevel Approach*. IEEE Transactions on Pattern Analysis and Machine Intelligence, Vol. 29, No. 11, pp. 1944–1957, 2007.
10. J. Hopcroft, O. Khan, B. Kulis, and B. Selman. *Tracking Evolving Communities in Large Linked Networks*. Proceedings of the National Academy of Sciences, Vol. 101, pp. 5249–5253, 2004.

• **Conference Publications**

1. C. Jose, J. Wang, G. Strimel, Y. Mishchenko, M. Khurshed, and B. Kulis. *Latency Control for Keyword Spotting*. Proc. 23rd INTERSPEECH Conference, 2022.
2. A. Siahkamari, D. Acar, C. Liao, K. Geyer, V. Saligrama, and B. Kulis. *Faster Algorithms for Learning Convex Functions*. Proc. 39th International Conference on Machine Learning (ICML), 2022.
3. X. Xia, T. Xue, W. Lai, A. Chang, B. Kulis, and J. Chen. *Real-Time Localized Photorealistic Video Style Transfer*. Proc. IEEE/CVF Winter Conference on Applications of Computer Vision (WACV), 2021.
4. A. Siahkamari, X. Xia, V. Saligrama, D. Castanon, and B. Kulis. *Learning to Approximate a Bregman Divergence*. Neural Information Processing Systems (NeurIPS), 2020.
5. R. Kumar, M. Rodehorst, J. Wang, J. Gu, and B. Kulis. *Building a Robust Word-Level Wakeword Verification Network*. Proc. 21st INTERSPEECH Conference, 2020.
6. J. Wang, R. Kumar, M. Rodehorst, B. Kulis, and S. Vitaladevuni. *An Audio-Based Wakeword-Independent Verification System*. Proc. 21st INTERSPEECH Conference, 2020.
7. H. Liu, A. Abhyankar, Y. Mishchenko, T. Senechal, G. Fu, B. Kulis, N. Stein, A. Shah, and S. Vitaladevuni. *Metadata-Aware End-to-End Keyword Spotting*. Proc. 21st INTERSPEECH Conference, 2020.
8. X. Xia, M. Zhang, T. Xue, Z. Sun, H. Fang, B. Kulis, and J. Chen. *Joint Bilateral Learning for Real-time Universal Photorealistic Style Transfer*. Proc. 16th European Conference on Computer Vision (ECCV), 2020.
9. K. Cilingir, R. Manzelli, and B. Kulis. *Deep Divergence Learning*. Proc. 37th International Conference on Machine Learning (ICML), 2020.
10. A. Siahkamari, A. Gangrade, B. Kulis, and V. Saligrama. *Piecewise Linear Regression via a Difference of Convex Functions*. Proc. 37th International Conference on Machine Learning (ICML), 2020.
11. X. Wang, S. Wang, P. Chen, Y. Wang, B. Kulis, X. Lin, and P. Chin. *Protecting Neural Networks with Hierarchical Random Switching: Towards Better Robustness-Accuracy Trade-off for Stochastic Defenses*. Proc. 28th International Joint Conference on Artificial Intelligence (IJCAI), 2019.
12. K. He, F. Cakir, X. Xia, B. Kulis, and S. Sclaroff. *Deep Metric Learning to Rank*. Proc. Computer Vision and Pattern Recognition Conference (CVPR), 2019.
13. R. Manzelli, V. Thakkar, A. Siahkamari, and B. Kulis. *Conditioning Deep Generative Raw Audio Models for Structured Automatic Music*. Proc. 19th International Society for Music Information Retrieval Conference (ISMIR), 2018.
14. A. Cutler and B. Kulis. *Inferring Human Traits from Facebook Statuses*. Proc. 10th International Conference on Social Informatics (Socinfo), 2018.
15. K. Jiang, S. Sra, and B. Kulis. *Combinatorial Topic Models using Small-Variance Asymptotics*. Proc. 20th International AISTATS Conference, 2017.
16. A. Roychowdhury, B. Kulis, and S. Parthasarathy. *Robust Monte Carlo Sampling using Riemannian Nosé-Poincaré Hamiltonian Dynamics*. Proc. 33rd International Conference on Machine Learning (ICML), 2016.
17. K. Jiang, Q. Que, and B. Kulis. *Revisiting Kernelized Locality-Sensitive Hashing for Improved Large-Scale Image Retrieval*. Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2015.

18. R. Finn and B. Kulis. *A Sufficient Statistics Construction of Exponential Family Lévy Measure Densities for Nonparametric Conjugate Models*. Proc. 18th International AISTATS Conference, 2015.
19. X. Zhou, J. Zhang, and B. Kulis. *Power-Law Graph Cuts*. Proc. 18th International AISTATS Conference, 2015.
20. A. Roychowdhury and B. Kulis. *Gamma Processes, Stick-Breaking, and Variational Inference*. Proc. 18th International AISTATS Conference, 2015.
21. A. Roychowdhury, K. Jiang, and B. Kulis. *Small-Variance Asymptotics for Hidden Markov Models*. Neural Information Processing Systems (NIPS), 2013. (Spotlight Presentation).
22. T. Campbell, M. Liu, B. Kulis, and J. How. *Dynamic Clustering via Asymptotics of the Dependent Dirichlet Process*. Neural Information Processing Systems (NIPS), 2013.
23. T. Broderick, B. Kulis, and M. I. Jordan. *MAD-Bayes: MAP-based Asymptotic Derivations from Bayes*. Proc. 30th International Conference on Machine Learning (ICML), 2013.
24. K. Jiang, B. Kulis and M. I. Jordan. *Small-Variance Asymptotics for Exponential Family Dirichlet Process Mixture Models*. Neural Information Processing Systems (NIPS), 2012.
25. J. Hoffman, B. Kulis, K. Saenko, and T. Darrell. *Discovering Latent Domains for Multisource Domain Adaptation*. Proc. 12th European Conference on Computer Vision (ECCV), 2012.
26. B. Kulis and M. I. Jordan. *Revisiting k-means: New Algorithms via Bayesian Nonparametrics*. Proc. 29th International Conference on Machine Learning (ICML), 2012.
27. B. Kulis, K. Saenko, and T. Darrell. *What You Saw Is Not What You Get: Domain Adaptation Using Asymmetric Kernel Transforms*. Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2011. **(Oral Presentation: 3.5% Acceptance Rate)**
28. M. E. Taylor, B. Kulis, and F. Sha. *Metric Learning for Reinforcement Learning Agents*. 10th International Conference on Autonomous Agents and Multiagent Systems (AAMAS), 2011.
29. P. Jain, B. Kulis, and I. Dhillon. *Inductive Regularized Learning of Kernel Functions*. Neural Information Processing Systems (NIPS), 2010. (Spotlight Presentation).
30. K. Saenko, B. Kulis, M. Fritz, and T. Darrell. *Adapting Visual Category Models to New Domains*. Proc. 11th European Conference on Computer Vision (ECCV), 2010.
31. B. Kulis and P. Bartlett. *Implicit Online Learning*. Proc. 27th International Conference on Machine Learning (ICML), 2010.
32. B. Kulis and T. Darrell. *Learning to Hash with Binary Reconstructive Embeddings*. Neural Information Processing Systems (NIPS), 2009. (Spotlight Presentation)
33. B. Kulis and K. Grauman. *Kernelized Locality-Sensitive Hashing for Scalable Image Search*. Proc. 12th IEEE International Conference on Computer Vision (ICCV), 2009.
34. B. Kulis, S. Sra, and I. Dhillon. *Convex Perturbations for Scalable Semidefinite Programming*. Proc. 12th International AISTATS Conference, 2009.
35. P. Jain, B. Kulis, I. Dhillon, and K. Grauman. *Online Metric Learning and Fast Similarity Search*. Neural Information Processing Systems (NIPS), 2008. **(Oral Presentation: 2.7% Acceptance Rate)**
36. P. Jain, B. Kulis, and K. Grauman. *Fast Image Search for Learned Metrics*. Proc. IEEE Conference on Computer Vision and Pattern Recognition (CVPR), 2008. **(CVPR 2008 Best Student Paper Award)**
37. J. Davis, B. Kulis, P. Jain, S. Sra, and I. Dhillon. *Information-theoretic Metric Learning*. Proc. 24th International Conference on Machine Learning (ICML), 2007. **(ICML 2007 Best Student Paper Award)**
38. B. Kulis, A. Surendran, and J. Platt. *Fast Low-rank Semidefinite Programming for Embedding and Clustering*. Proc. 11th International AISTATS Conference, 2007.
39. B. Kulis, M. Sustik, and I. Dhillon. *Learning Low-Rank Kernel Matrices*. Proc. 23rd International Conference on Machine Learning (ICML), 2006.



40. I. Dhillon, Y. Guan, and B. Kulis. *A Fast Kernel-based Multilevel Algorithm for Graph Clustering*. Proc. 11th ACM SIGKDD Conference, 2005.
41. B. Kulis, S. Basu, I. Dhillon, and R. Mooney. *Semi-supervised Graph Clustering: A Kernel Approach*. Proc. 22nd International Conference on Machine Learning (ICML), 2005. (**ICML 2005 Best Student Paper Award**)
42. I. Dhillon, Y. Guan, and B. Kulis. *Kernel k-means, Spectral Clustering and Normalized Cuts*. Proc. 10th ACM SIGKDD Conference, 2004.
43. J. Hopcroft, O. Khan, B. Kulis, and B. Selman. *Natural Communities in Large Linked Networks*. Proc. 9th ACM SIGKDD Conference, 2003.

• **Preprints, Workshop Papers, and Technical Reports**

1. M. Peng and M. Cokbas and U. Gallastegi and P. Ishwar and J. Konrad and B. Kulis and V. Goyal. *Convolutional neural network denoising of focused ion beam micrographs*. 31st IEEE Workshop on Machine Learning for Signal Processing, 2021.
2. M. Khursheed and C. Jose and R. Kumar and G. Fu and B. Kulis and S. Cheekatmalla. *Tiny-CRNN: Streaming Wakeword Detection In A Low Footprint Setting*. IEEE Automatic Speech Recognition and Understanding (ASRU) Workshop, 2021.
3. S. Sankarapandian and B. Kulis.  *$\beta$ -Annealed Variational Autoencoder for Glitches*. 3rd NeurIPS Workshop on Machine Learning and the Physical Sciences, 2020.
4. A. Siahkamari, V. Saligrama, D. Castanon, and B. Kulis. *Learning Bregman Divergences*. Arxiv: 1905.11545, 2019.
5. S. Sankarapandian, A. Kag, R. Manzelli, and B. Kulis. *Learning Compact Networks via Adaptive Network Regularization*. NIPS 2018 Workshop on Compact Deep Neural Networks with Industrial Applications, 2018.
6. R. Manzelli, V. Thakkar, A. Siahkamari, and B. Kulis. *An End-to-End Model for Automatic Music Generation: Combining Deep Raw and Symbolic Audio Networks*. 6th International Workshop on Musical Metacreation, 2018.
7. A. Cutler and B. Kulis. *Inferring Human Traits from Facebook Statuses*. Arxiv: 1805.08718, 2018.
8. X. Xia and B. Kulis. *W-Net: A Deep Model for Fully Unsupervised Image Segmentation*. Arxiv: 1711.08506, 2017.
9. B. Usman, K. Saenko, and B. Kulis. *Stable Distribution Alignment using the Dual of the Adversarial Distance*. International Conference on Learning Representations (ICLR) 2018 Workshop Track, 2018.
10. T. Campbell, B. Kulis, and J. How. *Dynamic Clustering Algorithms via Small-Variance Asymptotics of Markov Chain Mixture Models*. Arxiv: 1707.08493, 2017.
11. K. Jiang, S. Sra, and B. Kulis. *Combinatorial Topic Models using Small-Variance Asymptotics*. Arxiv: 1604.02027, 2016.
12. R. Finn and B. Kulis. *A Sufficient Statistics Construction of Bayesian Nonparametric Exponential Family Conjugate Models*. Arxiv: 1601.02257, 2016.
13. K. Jiang, Q. Que, and B. Kulis. *Revisiting Kernelized Locality-Sensitive Hashing for Improved Large-Scale Image Retrieval*. Arxiv: 1411.4199, 2014.
14. X. Zhou, J. Zhang, and B. Kulis. *Power-Law Graph Cuts*. Arxiv: 1411.1971, 2014. (Also presented at the NIPS 2014 Workshop on Networks: From Graphs to Rich Data.)
15. A. Roychowdhury and B. Kulis. *Gamma Processes, Stick-Breaking, and Variational Inference*. Arxiv: 1410.1068, 2014. (Also presented at the NIPS 2014 Workshop on Advances in Variational Inference.)
16. T. Broderick, B. Kulis, and M. I. Jordan. *MAD-Bayes: MAP-based Asymptotic Derivations from Bayes*. Arxiv: 1212.2126, 2012.
17. B. Kulis and M. I. Jordan. *Revisiting k-means: New Algorithms via Bayesian Nonparametrics*. Arxiv: 1111.0352, 2011.
18. K. Saenko, B. Kulis, M. Fritz, and T. Darrell. *Transferring Visual Category Models to New Domains*. University of California at Berkeley Technical Report # UCB/EECS-2010-54, May, 2010.

19. P. Jain, B. Kulis, J. V. Davis, and I. S. Dhillon. *Metric and Kernel Learning using a Linear Transformation*. ArXiv:0910.5932, October, 2009.
20. B. Kulis and T. Darrell. *Learning to Hash with Binary Reconstructive Embeddings*. University of California at Berkeley Technical Report # UCB/Eecs-2009-101, July, 2009.
21. P. Jain, B. Kulis, and K. Grauman. *Fast Similarity Search for Learned Metrics*. University of Texas at Austin Technical Report # TR-07-48, September, 2007.
22. B. Kulis, S. Sra, S. Jegelka, and I. Dhillon. *Scalable Semidefinite Programming using Convex Perturbations*. University of Texas at Austin Technical Report # TR-07-47, September, 2007.
23. P. Jain, B. Kulis, and I. Dhillon. *Online Linear Regression using Burg Entropy*. University of Texas at Austin Technical Report # TR-07-08, February, 2007.
24. J. Davis, B. Kulis, S. Sra, and I. Dhillon. *Information-theoretic Metric Learning*. NIPS 2006 Workshop on Learning to Compare Examples, 2006.
25. I. Dhillon, Y. Guan and B. Kulis. *A Unified View of Kernel k-means, Spectral Clustering and Graph Cuts*. University of Texas at Austin Technical Report # TR-04-25, July, 2004.

## Talks

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- *New Directions in Metric Learning*  
 University of Minnesota ML Seminar, Minneapolis, MN, USA July, 2021  
 WPI Graduate Seminar, Worcester, MA, USA December, 2020  
 CG Week Workshop on Comp. Aspects of Learning and Processing Metrical Data, Online June, 2020  
 UMass Lowell Machine Learning Seminar, Lowell, MA, USA November, 2019  
 Harvard Center for Mathematical Science and Applications, Cambridge, MA, USA September, 2019
- *Incorporating Context into Wakeword Cloud-side Verification*  
 Amazon Research Days, Cambridge, MA, USA November, 2019
- *Scalable Nonparametric Machine Learning*  
 Spotify Research Talk, Somerville, MA, USA March, 2019  
 Amazon Research Talk, Cambridge, MA, USA February, 2019  
 Boston University Data Science (BUDS) Day, Boston, MA, USA January, 2016
- *Small-Variance Asymptotics for Large-Scale Learning*  
 Harvard Center for Mathematical Science and Applications, Cambridge, MA, USA January, 2019  
 WPI ECE Graduate Seminar, Worcester, MA, USA April, 2016  
 MIT Machine Learning Seminar, Cambridge, MA, USA, October, 2015  
 Rutgers Computer Science Seminar, Piscataway, NJ, USA March, 2015  
 Boston University ECE Seminar, Boston MA, USA March, 2015  
 Northeastern University CCIS Colloquium, Boston, MA, USA February, 2015  
 University of Pennsylvania GRASP Seminar, Philadelphia, PA, USA December, 2014  
 Ohio State University CSE Focus on Faculty Talk, Columbus, OH, USA October, 2014  
 Ohio State University Statistics Department Seminar, Columbus, OH, USA September, 2014  
 University of Toronto Computer Science, Toronto, ON, Canada April, 2014  
 Brown University Computer Science Seminar, Providence, RI, USA May, 2013  
 Cornell University AI Seminar, Ithaca, NY, USA April, 2013
- *Domain Adaptation and Structured Divergence Learning*  
 ICML Workshop on Divergences and Divergence Learning, Atlanta, GA, USA June, 2013
- *Small-Variance Asymptotics, Bayesian Nonparametrics, and k-means*  
 NIPS Workshop on Graphical Models and Kernel Methods, Lake Tahoe, NV, USA December, 2012  
 Mysore Learning Workshop, Mysore, India August, 2012
- *Revisiting Kernelized Hashing*  
 ICCV Workshop on Vision for the Web, Florence, Italy October, 2012

- *Revisiting k-means: New Algorithms via Bayesian Nonparametrics*  
 ICML 2012, Edinburgh, Scotland June, 2012  
 NYU CBLI Seminar, New York, NY, USA June, 2012  
 Columbia University Machine Learning Seminar, New York, NY, USA June, 2012  
 Ohio State University AI Seminar, Columbus, OH, USA April, 2012  
 Purdue University ML Seminar, West Lafayette, IN, USA March, 2012  
 TTI Chicago, Chicago, IL, USA March, 2012
- *Learning for Search and Adaptation in Large-Scale Data*  
 University of Washington Machine Learning Seminar, Seattle, WA, USA May, 2011  
 University of Rochester Computer Science, Rochester, NY, USA March, 2011  
 Harvard University Computer Science, Cambridge, MA, USA March, 2011  
 Boston University ECE, Boston, MA, USA March, 2011  
 Google Research, Mountain View, CA, USA March, 2011  
 Imperial College Department of Computing, London, UK February, 2011  
 Ohio State CSE, Columbus, OH, USA January, 2011
- *Learning Transformations for Adaptation and Search*  
 UC Berkeley SDH Seminar, Berkeley, CA, USA October, 2010  
 UC Davis Statistics Seminar, Davis, CA, USA October, 2010  
 Max Planck Institute, Tübingen, Germany September, 2010  
 University of Ljubljana, Ljubljana, Slovenia September, 2010  
 TTI Chicago, Chicago, IL, USA August, 2010
- *Implicit Online Learning*  
 ICML 2010, Haifa, Israel June, 2010  
 IPAM Lake Arrowhead Workshop, Lake Arrowhead, CA, USA June, 2010  
 UC Berkeley Machine Learning Tea, Berkeley, CA, USA October, 2009
- *Hashing Algorithms for Scalable Image Search*  
 IPAM Lake Arrowhead Workshop, Lake Arrowhead, CA, USA June, 2009
- *Scalable Metric Learning and Fast Similarity Search*  
 University of Michigan, Ann Arbor, MI, USA March, 2009
- *Scalable Metric Learning with the LogDet Divergence*  
 Yahoo! Research, Santa Clara, CA, USA February, 2009
- *Fast Image Search for Learned Metrics*  
 CVPR 2008, Anchorage, AK, USA June, 2008
- *Learning to Compare Objects*  
 MIT CSAIL Vision Interfaces Group, Cambridge, MA, USA June, 2008  
 University of North Carolina at Chapel Hill, Chapel Hill, NC, USA March, 2008  
 University of California at Santa Barbara, Santa Barbara, CA, USA February, 2008
- *Fast Image Search for Learned Metrics*  
 IPAM Lake Arrowhead Workshop, Lake Arrowhead, CA, USA December, 2007
- *Locality-sensitive Hashing and Fast Image Search*  
 IPAM Research Seminar at UCLA, Los Angeles, CA, USA October, 2007
- *Information-theoretic Metric Learning*  
 ICML 2007, Corvallis, OR, USA June, 2007
- *Spectral Clustering and Kernel k-means*  
 Two Guest Lectures for CS395T Data Mining Course, Austin, TX, USA April, 2007
- *Graph Cuts without Eigenvectors*  
 Microsoft Research, Redmond, WA, USA July, 2006

- *Learning Low-Rank Kernel Matrices*  
ICML 2006, Pittsburgh, PA, USA June, 2006
- *Scalable Kernel Methods for Machine Learning*  
Dissertation Defense, Austin, TX, USA November, 2008  
Dissertation Proposal, Austin, TX, USA May, 2006
- *Semi-supervised Graph Clustering: A Kernel Approach*  
ICML 2005, Bonn, Germany August, 2005