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Principal Research Scientist
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EDUCATION

Doctor of Philosophy, School of ECEE, Arizona State University, Tempe, AZ; Feb. 2013
Dissertation topic: New Directions in Sparse Models for Image Analysis and Restoration
Advisor: Andreas Spanias

Master of Science, School of ECEE, Arizona State University, Tempe, AZ; Aug. 2008
Thesis topic: Template Learning with Wavelet Domain Statistical Models for Pattern Synthesis and Classification
Advisor: Andreas Spanias

Bachelor of Engineering, Bharathiar University, India; Apr. 2004

PROFESSIONAL EXPERIENCE

Principal Research Scientist, IBM T. J. Watson Research Center, Yorktown Heights, NY 10598 (May 2022 onwards)
Research Staff Member, IBM T. J. Watson Research Center, Yorktown Heights, NY 10598 (Mar. 2013 - May 2022)
Student Worker, School of ECEE, Arizona State University, Tempe, AZ 85287 (Jan. 2012 - Feb. 2013)
Graduate Research Associate, School of ECEE, Arizona State University, Tempe, AZ 85287 (Jan. 2007 - Dec. 2011)
Graduate Teaching Associate, School of ECEE, Arizona State University, Tempe, AZ 85287 (Jan. 2009 - Dec. 2011)
Student Researcher, Translational Genomics Research Institute, Phoenix, AZ 85004 (Jun. - Jul. 2009)
Member Technical Staff, HCL Technologies, Chennai, India (Jul. 2004 - Aug. 2006)

CURRENT RESEARCH INTERESTS

Machine learning / Artificial Intelligence, geometry and topology of models and data, ethical considerations in AI, real-world applications

SOFTWARE SKILLS

Python, Julia, R, MATLAB, C, Java, LabVIEW, SPSS, SAS, PySpark

PUBLICATIONS

Journal Articles

1. D. Wei, K. N. Ramamurthy, and F. P. Calmon, "Optimized Score Transformation for Consistent Fair Classification," *Journal of Machine Learning Research (JMLR)*, 22(258): 1-78, October 2021.
2. P. Zheng, K. N. Ramamurthy, and A. Aravkin, "Estimating Shape Parameters of Piecewise Linear-Quadratic Problems," *Open Journal of Mathematical Optimization*, Volume 2, 2021. https://doi.org/10.5802/ojmo.10
3. M. Yu, K. N. Ramamurthy, A. Thompson, and A. C. Lozano, "Simultaneous Parameter Learning and Bi-Clustering for Multi-Response Models," *Frontiers in Big Data*, vol. 2, 2019.

4. M. Arnold *et al.*, "FactSheets: Increasing trust in AI services through supplier's declarations of conformity," *IBM Journal of Research and Development*, vol. 63, no. 4/5, pp. 6:1-6:13, 1 July-Sept. 2019.
5. R. K. E. Bellamy *et al.*, "AI Fairness 360: An extensible toolkit for detecting and mitigating algorithmic bias," *IBM Journal of Research and Development*, vol. 63, no. 4/5, pp. 4:1-4:15, 1 July-Sept. 2019.
6. R. K. E. Bellamy *et al.*, "Think Your Artificial Intelligence Software Is Fair? Think Again," in *IEEE Software*, vol. 36, no. 4, pp. 76-80, July-Aug. 2019. doi: 10.1109/MS.2019.2908514
7. D. Wei, K. N. Ramamurthy, and K. R. Varshney, "Distribution preserving k-anonymity," *Statistical Analysis and Data Mining: The ASA Data Science Journal*, 2018.
8. F. Calmon, D. Wei, B. Vinzamuri, K. N. Ramamurthy, K. R. Varshney, "Data Pre-Processing for Discrimination Prevention: Information-Theoretic Optimization and Analysis," *IEEE Journal of Selected Topics in Signal Processing*, 12(5), 1106-1119, 2018.
9. C. Kuhlman, K. N. Ramamurthy, P. Sattigeri, A. C. Lozano, L. Cao, C. Reddy, A. Mojsilović, and K. R. Varshney , "How to Foster Innovation: A Data-Driven Approach to Measuring Economic Competitiveness," *IBM Journal of Research and Development*, 2017.
10. K. R. Varshney, D. Wei, K. N. Ramamurthy, and A. Mojsilović, "Data Challenges in Disease Response: The 2014 Ebola Outbreak and Beyond", *ACM Journal of Data and Information Quality*, 2015.
11. K. N. Ramamurthy, L. A. Hinnov, and A. Spanias, "Teaching Earth Signals Analysis using the JavaDSP Earth Systems Edition: Modern and Past Climate Change," *Journal of Geoscience Education*, 2014.
12. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Learning Stable Multilevel Dictionaries for Sparse Representations," *IEEE Transactions on Neural Networks and Learning Systems*, 2014.
13. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Multiple Kernel Sparse Representations for Supervised and Unsupervised Learning," *IEEE Transactions on Image Processing*, 2014.
14. J. J. Thiagarajan, K. N. Ramamurthy, D. Rajan, A. Puri, D. Frakes, and A. Spanias, "Kernel sparse models for automated tumor segmentation," *International Journal on Artificial Intelligence Tools*, 2014 (invited paper).
15. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "Recovering Non-negative and Combined Sparse Representations," *Digital Signal Processing*, 2013.
16. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Mixing matrix estimation using discriminative clustering for blind source separation," *Digital Signal Processing*, 2012.
17. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Optimality and Stability of the K-hyperline Clustering Algorithm," *Pattern Recognition Letters*, 2011.
18. K. N. Ramamurthy, J. J. Thiagarajan, P. Sattigeri, and A. Spanias, "Transform Domain Features for Ion-channel Signal Classification", *Biomedical Signal Processing and Control*, 2010.

Conference Proceedings

1. W. Li, G. Dasarathy, K. N. Ramamurthy, and V. Berisha, "Conditionally Independent Data Generation," *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2022.
2. I. Baldini, D. Wei, K. N. Ramamurthy, M. Yurochkin, and M. Singh, "Your fairness may vary: Pretrained language model fairness in toxic text classification," *Findings of ACL*, 2022.
3. Y. Schiff, V. Chenthamarakshan, S. Hoffman, K. N. Ramamurthy, and P. Das, "Augmenting Molecular Deep Generative Models with Topological Data Analysis Representations," *ICASSP*, 2022.
4. M. Hajij, K. N. Ramamurthy, A. Guzmán-Sáenz, and G. Zamzmi, "High Skip Networks: A higher order generalization of skip connections," *ICLR Workshop on Geometrical and Topological Representation Learning*, 2022.

5. K. Arhin, I. Baldini, D. Wei, K. N. Ramamurthy, and M. Singh, "Ground-Truth, Whose Truth? - Examining the Challenges with Annotating Toxic Text Datasets," *Data Centric AI - NeurIPS Workshop*, 2021.
6. M. Hajij, G. Zamzmi, K. N. Ramamurthy, and A. G. Saenz, "Data-Centric AI Requires Rethinking Data Notion," *Data Centric AI - NeurIPS Workshop*, 2021.
7. M. Hajij, K. N. Ramamurthy, A. G. Saenz, and K. Istvan, "Topological Deep Learning," *Data Centric AI - NeurIPS Workshop*, 2021.
8. K. Ahuja, P. Sattigeri, K. Shanmugam, D. Wei, K. N. Ramamurthy, and M. Kocaoglu, "Conditionally Independent Data Generation," *Conference on Uncertainty in Artificial Intelligence (UAI)*, 2021.
9. P. Kadambi, K. N. Ramamurthy, and V. Berisha, "Comparing Fisher Information Regularization with Distillation for DNN Quantization," *Deep Learning through Information Geometry - NeurIPS Workshop*, 2020.
10. Y. Schiff, V. Chenthamarakshan, K. N. Ramamurthy, and P. Das, "Characterizing the Latent Space of Molecular Deep Generative Models with Persistent Homology Metrics," *Topological Data Analysis and Beyond - NeurIPS Workshop*, 2020.
11. W. Li, G. Dasarathy, K. N. Ramamurthy, and V. Berisha, "Finding the Homology of Decision Boundaries with Active Learning," *NeurIPS*, 2020.
12. K. N. Ramamurthy, B. Vinzamuri, Y. Zhang, and A. Dhurandhar, "Model Agnostic Multi-level Explanations," *NeurIPS*, 2020.
13. P. Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, and B. Kailkhura, "Treeview and Disentangled Representations for Explaining Deep Neural Networks Decisions," *IEEE Asilomar*, 2020.
14. Anirudh Som, Hongjun Choi, Karthikeyan Natesan Ramamurthy, Matthew Buman, Pavan Turaga, "PI-Net: A Deep Learning Approach to Extract Topological Persistence Images," *DiffCVML Workshop - CVPR*, 2020.
15. W. Alghamdi, S. Asoodeh, H. Wang, F. P. Calmon, D. Wei, and K. N. Ramamurthy, "Model Projection: Theory and Applications to Fair Machine Learning, "*IEEE International Symposium on Information Theory (ISIT)*, 2020.
16. D. Wei, K. N. Ramamurthy, and F. Calmon, "Optimized Score Transformation for Fair Classification," *AISTATS*, 2020.
17. P. Zhao, P.-Y. Chen, Payel Das, K. N. Ramamurthy, and X. Lin, "Bridging Mode Connectivity in Loss Landscapes and Adversarial Robustness," *ICLR*, 2020.
18. M. Oh, P. Olsen, and K. N. Ramamurthy, "Crowd Counting with Decomposed Uncertainty," *AAAI*, 2020.
19. S. Subramanian, I. Baldini, S. Ravichandran, D. A. Katz-Rogozhnikov, K. N. Ramamurthy, P. Sattigeri, K. R. Varshney, A. Wang, P. Mangalath, and L. B. Kleiman, "A Natural Language Processing System for Extracting Evidence of Drug Repurposing from Scientific Publications," *IAAI*, 2020.
20. M. Singh, and K. N. Ramamurthy, "Understanding racial bias in health using the Medical Expenditure Panel Survey data," *NeurIPS Workshop on Fair ML for Health*, 2019 (Spotlight presentation).
21. S. Subramanian *et al.*, "Drug Repurposing for Cancer: An NLP Approach to Identify Low-Cost Therapies," *NeurIPS 2019 Workshop on Machine Learning for Health*, 2019.
22. N. Codella, M. Hind, K. N. Ramamurthy, M. Campbell, A. Dhurandhar, K. Varshney, D. Wei, and A. Mojsilovic, "Teaching AI to Explain its Decisions Using Embeddings and Multi-Task Learning", *ICML Workshop on Human In the Loop Learning*, 2019.
23. K. N. Ramamurthy, K. R. Varshney, and K. Mody, "Topological Data Analysis of Decision Boundaries with Application to Model Selection," *ICML*, 2019.
24. P. K. Lohia, K. N. Ramamurthy, M. Bhide, D. Saha, K. R. Varshney, and R. Puri, "Bias Mitigation Post-processing for Individual and Group Fairness," *IEEE ICASSP*, 2019.

25. A. Coston, K. N. Ramamurthy, D. Wei, K. Varshney, S. Speakman, Z. Mustahsan, and S. Chakraborty, "Fair Transfer Learning with Missing Protected Attributes", *AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society,* Jan. 2019.
26. N. Codella, M. Hind, K. N. Ramamurthy, M. Campbell, A. Dhurandhar, K. Varshney, D. Wei, and A. Mojsilovic, "TED: Teaching AI to Explain its Decisions", *AAAI/ACM Conference on Artificial Intelligence, Ethics, and Society,* Jan. 2019.
27. P. Sattigeri, S. Ghosh, A. Kumar, K. N. Ramamurthy, S. Hoffman, Y. Drissi, and I. Padhi, "Probabilistic Mixture of Model-Agnostic Meta-Learners," *Proc. NeurIPS Workshop on Bayesian Deep Learning,* Dec. 2018.
28. P. Olsen, K. N. Ramamurthy, J. Ribera, Y. Chen, A. Thompson, R. Luss, M. Tuinstra, and N. Abe, "Detecting and Counting Panicles in Sorghum Images", *Proc. IEEE DSAA*, Oct. 2018.
29. P. Olsen, K. N. Ramamurthy, J. Ribera, Y. Chen, A. Thompson, R. Luss, M. Tuinstra, and N. Abe, "Learning to Detect and Count Panicles in Sorghum Images", *Proc. KDD FEED Workshop*, Aug. 2018.
30. A. Som, K. Thopalli, K. N. Ramamurthy, V. Venkataraman, A. Shukla, and P. Turaga, "Perturbation Robust Representations of Topological Persistence Diagrams", *Proc. of European Conference on Computer Vision*, Sep. 2018.
31. W. Zhang, R. Horesh, K. N. Ramamurthy, L. Wu, J. Yi, K. Anderson, and K. R. Varshney, "Financial Forecasting and Analysis for Low-Wage Workers," *Bloomberg Data for Good Exchange*, Sep. 2018.
32. J. J. Thiagarajan, S. Liu, K. N. Ramamurthy, and P-T. Bremer. "Exploring High-Dimensional Structure via Axis-Aligned Decomposition of Linear Projections," *In Computer Graphics Forum*, 37(3), pp. 241-251, Jul. 2018.
33. F. Calmon, D. Wei, K. N. Ramamurthy, B. Vinzamuri, and K. R. Varshney, "Optimized Pre-Processing for Discrimination Prevention", *Proc. NIPS*, Dec. 2017.
34. A. Som, N. Krishnamurthi, V. Venkataraman, K. N. Ramamurthy, and P. Turaga, "Multiscale Evolution of Attractor-shape Descriptors for Assessing Parkinson's Disease Severity", *IEEE GlobalSIP Symposium on Signal and Information Processing for Healthcare Engineering*, Nov. 2017.
35. M. Singh, K. N. Ramamurthy, and S. Vasudevan, "Propensity modeling for employee re-skilling", *IEEE GlobalSIP Symposium on Signal and Information Processing for Finance and Business*, Nov. 2017.
36. K. N. Ramamurthy, C.-C.Lin, A. Y. Aravkin, S. Pankanti, and R. Viguier, "Distributed Bundle Adjustment," *ICCV Workshops - Computer Vision for UAVs*, 2017.
37. P. Zheng, A. Y. Aravkin, K. N. Ramamurthy, and J. J. Thiagarajan, "Learning Robust Representations for Computer Vision," *ICCV Workshops - Robust Subspace Learning and Applications in Computer Vision*, 2017.
38. A. M. Thompson, M. Yu, K. N. Ramamurthy, E. Yang, A. C. Lozano, "Multitask Learning using Task Clustering with Applications to Predictive Modeling and GWAS of Plant Varieties," *Proc. of KDD Workshops - Data Science for Intelligent Food, Energy, and Water*, 2017.
39. H. Song, J. J. Thiagarajan, P. Sattigeri, K. N. Ramamurthy, and A. Spanias , "A deep learning approach to multiple kernel fusion," *IEEE ICASSP*, 2017.
40. J. J. Thiagarajan, B. Kailkhura, P. Sattigeri, and K. N. Ramamurthy, "TreeView: Peeking into Deep Neural Networks Via Feature-Space Partitioning," *Proc. of NIPS Workshops (Interpretable ML for Complex Systems)*, 2016.
41. J. J. Thiagarajan, P. Sattigeri, K. N. Ramamurthy, and B. Kailkhura, "Robust Local Scaling using Conditional Quantiles of Graph Similarities," *Proc. of IEEE ICDM Workshops (High Dimensional Data Mining)*, 2016.
42. V. Venkataraman, K. N. Ramamurthy, and P. Turaga, "Persistent Homology of Attractors for Action Recognition," *Proc. of IEEE ICIP*, 2016.

43. H. Song, J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Auto-Context Modeling using Multiple Kernel Learning," *Proc. of IEEE ICIP*, 2016.
44. K. N. Ramamurthy, Z. Zhang, A. M. Thompson, F. He, M. M. Crawford, A. F. Habib, C. F. Weil, and M. R. Tuinstra, "Predictive Modeling of Sorghum Phenotypes with Airborne Image Features," *Proc. of KDD (Workshop on Data Science for Food, Energy, and Water)*, 2016.
45. M. R. Tuinstra *et al.*, "Automated Sorghum Phenotyping and Trait Development Platform," *Proc. of KDD (Workshop on Data Science for Food, Energy, and Water)*, 2016.
46. R. Anirudh, V. Venkataraman, K. N. Ramamurthy, and P. Turaga, "A Riemannian Framework for Statistical Analysis of Topological Persistence Diagrams," *Proc. of IEEE CVPR Workshops (DIFF-CVML)*, 2016
47. A. Wisler, V. Berisha, D. Wei, K. N. Ramamurthy, and A. Spanias, "Empirically-estimable multi-class classification bounds," *Proc. IEEE ICASSP*, 2016.
48. K. N. Ramamurthy, A. Y. Aravkin, and J. J. Thiagarajan, "Beyond L2-Loss Functions for Learning Sparse Models," *Proc. of IEEE ICASSP*, 2016.
49. H. Song, J. J. Thiagarajan, K. N. Ramamurthy, A. Spanias, and P. Turaga, "Consensus Inference on Mobile Phone Sensors for Activity Recognition," *Proc. of IEEE ICASSP*, 2016.
50. J. J. Thiagarajan, K. N. Ramamurthy, B. Kanberoglu, D. Frakes, K. Bennett, and A. Spanias, "Measuring glomerular number from kidney MRI images ," *Proc. of SPIE Medical Imaging*, 2016.
51. D. A. Katz-Rogozhnikov, D. Wei, Gigi Y. Yuen-Reed, K. N. Ramamurthy, and A. Mojsilović, "Toward Comprehensive Attribution of Healthcare Cost Changes" *Proc. of IEEE ICDM*, 2015.
52. K. N. Ramamurthy, M. Singh, M. Davis, J. A. Kevern, and M. Peran, "Identifying Employees for Re-Skilling using an Analytics-Based Approach" *Proc. of IEEE ICDM*, 2015.
53. K. N. Ramamurthy, M. Singh, Y. Yu, J. Aspis, M. Iames, M. Peran, and Q. Held, "A Talent Management Tool using Propensity to Leave Analytics," *IEEE DSAA*, 2015 (**Best Application Paper Award**).
54. C.-C. Lin, S. U. Pankanti, K. N. Ramamurthy, and A. Y. Aravkin, "Adaptive As-Natural-As-Possible Image Stitching," in *Proc. of IEEE CVPR*, 2015.
55. K. R. Varshney, and K. N. Ramamurthy, "Persistent topology of decision boundaries," in *Proc. of IEEE ICASSP*, 2015.
56. J. J. Thiagarajan, and K. N. Ramamurthy, "Subspace Learning using Consensus on the Grassmannian Manifold," in *Proc. of IEEE ICASSP*, 2015.
57. A. Wisler, V. Berisha, K. N. Ramamurthy, A. Spanias, and J. Liss, "Removing Data with Noisy Outliers in Regression Analysis," in *Proc. of IEEE ICASSP*, 2015.
58. D. Wei, K. N. Ramamurthy, and K. R. Varshney, "Health Insurance Market Risk Assessment: Covariate Shift and k-Anonymity," in *Proc. SIAM Data Mining*, 2015 (**Best Paper Award - Honorable Mention**).
59. K. N. Ramamurthy, J. J. Thiagarajan, R. Sridhar, P. Kothandaraman, and R. Nachiappan, "Consensus Inference with Multilayer Graphs for Multi-modal Data," in *Proc. of Asilomar SSC*, 2014.
60. P. Sattigeri, J. J. Thiagarajan, M. Shah, K. N. Ramamurthy, and A. Spanias, "A Scalable Feature Learning and Tag Prediction Framework for Natural Environment Sounds," in *Proc. of Asilomar SSC*, 2014.
61. J. J. Thiagarajan, K. N. Ramamurthy, P. Sattigeri, P. T. Bremer, and A. Spanias, "Automated image annotation using inverse maps from semantic embeddings," in *Proc. of IEEE ICIP*, 2014.
62. A. Y. Aravkin, K. N. Ramamurthy, and G. Pillonetto, "Kalman Smoothing With Persistent Nuisance Parameters," in *Proc. of IEEE MLSP Workshop*, 2014.
63. K. N. Ramamurthy, K. R. Varshney, and J. J. Thiagarajan, "Computing persistent homology under random projection," in *Proc. of IEEE SSP Workshop*, 2014.

64. D. Wei, K. N. Ramamurthy, D. A. Katz-Rogozhnikov, and A. Mojsilović, "Multiplicative regression via constrained least squares," in *Proc. of IEEE SSP Workshop*, 2014.
65. J. J. Thiagarajan, K. N. Ramamurthy, and P. T. Bremer, "Multiple kernel interpolation for inverting non-linear dimensionality reduction and dimension estimation," in *Proc. of IEEE ICASSP*, 2014.
66. K. N. Ramamurthy, K. R. Varshney, and M. Singh, "Quantile Regression for Workforce Analytics," in *Proc. of IEEE GlobalSIP*, 2013.
67. D. Fang, K. R. Varshney, J. Wang, K. N. Ramamurthy, A. Mojsilović, and J. H. Bauer, "Quantifying and Recommending Expertise When New Skills Emerge," in *Proc. IEEE Data Mining Workshops (ICDMW)*, 2013.
68. K.N. Ramamurthy, J.J. Thiagarajan, A. Spanias and P. Sattigeri, "Boosted dictionaries for image restoration based on sparse representations," in *Proc. of IEEE ICASSP*, 2013.
69. R. Anirudh, K.N. Ramamurthy, J.J. Thiagarajan, P. Turaga, and Andreas Spanias, "A heterogeneous dictionary model representation and recognition of human actions," in *Proc. of IEEE ICASSP*, 2013
70. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "Learning Dictionaries with Graph Embedding Constraints," in *Proc. of Asilomar SSC*, 2012.
71. J. J. Thiagarajan, D. Rajan, K. N. Ramamurthy, D. Frakes, and A. Spanias, "Automated Tumor Segmentation using Kernel Sparse Representations," in *Proc. of IEEE BIBE*, 2012 (**Best Student Paper award - Finalist**).
72. J. J. Thiagarajan, K. N. Ramamurthy, P. Sattigeri, and A. Spanias, "Supervised Local Sparse Coding of Sub-image Features for Image Retrieval," in *Proc. of IEEE ICIP*, 2012.
73. P. Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, A. Spanias, M. Goryll, and T. Thornton, "Denoising and event extraction for silicon pore sensors using matrix decomposition," in *Proc. of SSPD*, 2012
74. J. J. Thiagarajan, K. N. Ramamurthy, A. Spanias, and P. Nasiopoulos, "Learning Multilevel Dictionaries for Compressed Sensing using Discriminative Clustering," in *Proc. of IIH-MSP*, 2012.
75. P. Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Implementation of a Fast Image Coding and Retrieval System using a GPU", in *Proc. of IEEE ESPA*, 2012.
76. S. Hu, J. Liu, A. Spanias, J. J. Thiagarajan, K. N. Ramamurthy, X. Zhang, S. Ranganath, and M. K. Banavar, "A Mobile DSP Simulation App for Design, Testing and Education," in *Proc. of IEEE ESPA*, 2012.
77. K. N. Ramamurthy and A. Spanias, "Optimized Measurements for Kernel Compressive Sensing," in *Proc. of Asilomar SSC*, 2011.
78. J. Liu, A. Spanias, M. K. Banavar, J. J. Thiagarajan, K. N. Ramamurthy, S. Hu, and X. Zhang, "Work in Progress - Interactive Signal-processing Labs and Simulations on iOS Devices," in *Proc. of IEEE FIE*, 2011.
79. K. N. Ramamurthy, L. A. Hinnov, and A. Spanias, "Work in Progress - The J-DSP/ESE Software for Analyzing Earth Systems Signals," in *Proc. of IEEE FIE*, 2011.
80. K. N. Ramamurthy, A. Spanias, and L. A. Hinnov, "J-DSP/ESE Laboratories for Analyzing Climate Change," in *Proc. ASEE Conf.*, 2011.
81. P. Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Robust PSD Features for Ion-channel Signals," in *Proc. of SSPD*, 2011.
82. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "Improved Sparse Coding using Manifold Projections," in *Proc. of IEEE ICIP*, 2011.
83. J. Liu, J. J. Thiagarajan, A. Spanias, K. N. Ramamurthy, S. Hu, and M.K. Banavar, "iPhone/iPad Based Interactive Laboratory for Signal Processing in Mobile Devices," in *Proc. of ASEE Conf.*, 2011.
84. K. N. Ramamurthy, A. Spanias, and L. Hinnov, "J-DSP/ESE Laboratories for Analyzing Climate Change," in *Proc. of ASEE Conf.*, 2011.

85. P. Knee, J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "SAR Target Classification using Sparse Representations and Spatial Pyramids," in *Proc. of IEEE Radar Conf. (RADAR)*, 2011.
86. P. Sattigeri, K. N. Ramamurthy, J. J. Thiagarajan, M. Goryll, A. Spanias, and T. Thornton, "Analyte Detection using an Ion-channel Sensor Array," in *Proc. of International Conf. on DSP*, 2011.
87. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Multilevel Dictionary Learning for Sparse Representation of Images," in *Proc. of IEEE DSP Workshop*, 2011 (**Best Student Paper award - Finalist**).
88. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "An Interactive Speech Coding Tool using LabVIEW," in *Proc. of IEEE DSP Workshop*, 2011.
89. A. Spanias, K. N. Ramamurthy, and J. J. Thiagarajan, "Workshop - Designing Signals and Systems Laboratories using Java-DSP," in *Proc. of IEEE FIE*, 2010.
90. J. J. Thiagarajan, K. N. Ramamurthy, P. Knee, A. Spanias, and V. Berisha, "Sparse Representations for Automatic Target Classification in SAR Images," in *Proc. of IEEE ISCCSP*, 2010.
91. S. Mehta, J. J. Thiagarajan, P. Spanias, K. Ramamurthy, R. Santucci, A. Spanias, S. Haag, and M. Banavar, "An Interactive Learning Environment for DSP," in *Proc. ASEE Conf.*, 2010.
92. P. Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, B. Konnanath, T. Mathew, A. Spanias, M. Goryll, T. Thornton, S. Prasad, and S Phillips, "Signal Processing for Biologically Inspired Sensors," in *Proc. of IEEE ISCCSP*, 2010.
93. P Sattigeri, J. J. Thiagarajan, K. N. Ramamurthy, P. Joshi, A. Spanias, M. Goryll, and T Thornton, "Analysis of Coulter counting data from nanopores using clustering," in *Proc. of SSPD*, 2010.
94. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "Template Learning using Wavelet Domain Statistical Models," in *Research and Development in Intelligent Systems XXVI*, Springer, 2010.
95. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Dimensionality Reduction for Distance Based Video Clustering," in *Artificial Intelligence Applications and Innovations*, 2010.
96. K. N. Ramamurthy, J. J. Thiagarajan, P. Sattigeri, and A. Spanias, "Transform Domain Features for Ion-channel Signal Classification using Support Vector Machines," in *Proc. of IEEE ITAB*, 2009.
97. K. N. Ramamurthy, J. J. Thiagarajan, and A. Spanias, "Fast Image Registration using Non-stationary Gauss Markov Random Field Templates," in *Proc. of IEEE ICIP*, 2009.
98. K. N. Ramamurthy, A. Spanias L. Hinnov, C. Akujuobi, M. Stiber, M. Pattichis, E. Doering, C. Pattichis, H. Thornburg, and A. Papandreou-Suppappola, "Work in Progress - Collaborative Multidisciplinary J-DSP Software Project," in *Proc. of IEEE FIE*, 2009.
99. A. Spanias, K. N. Ramamurthy, and L. Hinnov, "Workshop - Designing Multidisciplinary Signal and Data Analysis Laboratories using Java-DSP," in *Proc. of IEEE FIE*, 2009.
100. A. Spanias, L. Hinnov, M. Stiber, C. Akujuobi, M. Pattichis, C. Pattichis, E. Doering, K. Ramamurthy, S. Mehta, R. Ayyanar, and H. Thornburg, "The Java DSP Phase 3 Project: An Interdisciplinary Multiuniversity Effort," in *Proc. of ASEE Conf.*, 2009.
101. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Sparse Representations for Pattern Classification using Learned Dictionaries," in *Research and Development in Intelligent Systems XXV*, Springer, 2009.
102. A. Spanias, P. Knee, H. Kwon, K. N. Ramamurthy, J. J. Thiagarajan, and P. Spanias, "Java Simulations of DSP Algorithms for Ion-Channel Sensors," in *Proc. of IEEE FIE*, 2008.
103. K. N. Ramamurthy, A. Spanias, L. Hinnov, and J. Ogg, "On the Use of Java-DSP in Earth systems," in *Proc. of ASEE Conf.*, 2008.
104. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Shift-invariant Sparse Representation of Images using Learned Dictionaries," in *Proc. of IEEE Workshop on MLSP*, 2008.
105. A. Spanias, K. N. Ramamurthy, J. J. Thiagarajan, and P. Spanias, "Work in Progress - Teaching Speech Signal Processing and Coding using LabVIEW," in *Proc. of IEEE FIE*, 2007.

106. A. Spanias, K. N. Ramamurthy, J. J. Thiagarajan, M. Banavar, and C. Huang, "Using J-DSP And Labview to Perform Undergraduate Labs," in *Proc. of ASEE Annual Conference*, 2007.

In Progress/Under Review

1. M. Oh, P. Olsen, and K. N. Ramamurthy, "Counting and Segmenting Sorghum Heads," *arXiv preprint arXiv:1905.13291*, 2019.
2. A. Som, H. Choi, K.N. Ramamurthy, M. Buman, and P. Turaga, "PI-Net: A Deep Learning Approach to Extract Topological Persistence Images," *arXiv preprint arXiv:1906.01769*, 2019.

Technical Reports

1. K. N. Ramamurthy, A. Y. Aravkin, and J. J. Thiagarajan, "Automatic Inference of the Quantile Parameter," *ArXiv e-prints*, Nov. 2015.
2. S. Becker, B. Kawas, M. Petrik, and K. N. Ramamurthy, "Robust Partially-Compressed Least-Squares," *ArXiv e-prints*, Oct. 2015.
3. K. N. Ramamurthy, J. J. Thiagarajan, P. Sattigeri, and A. Spanias, "Ensemble Sparse Models for Image Analysis," *ArXiv e-prints*, Feb. 2013.
4. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Local Sparse Coding for Image Classification and Retrieval," *Technical Report*, 2008.

Book Chapters

1. A. Som, K. N. Ramamurthy, and P. Turaga, "Geometric Metrics for Topological Representations." In *Handbook of Variational Methods for Nonlinear Geometric Data*, Springer, 2020.
2. C.-C. Lin, K. N. Ramamurthy, and S. U. Pankanti, "Moving Camera Analytics: Computer Vision Applications." In *Embedded, Cyber-Physical, and IoT Systems*, pp. 89-113. Springer, Cham, 2020.

Books

1. J. J. Thiagarajan, K. N. Ramamurthy, and A. Spanias, "Sparse Representations for Image Understanding," *Synthesis Lectures on Image, Video and Multimedia*, Morgan and Claypool Publishers, 2014.
2. K. N. Ramamurthy and A. Spanias, "MATLAB Software for the Code Excited Linear Prediction Algorithm," *Synthesis Lectures on Algorithms and Software in Engineering*, Morgan and Claypool Publishers, 2010.

Dissertation and Thesis

- K. N. Ramamurthy, "New Directions in Sparse Models for Image Analysis and Restoration," *PhD dissertation*, Arizona State University, Feb. 2013.
- K. N. Ramamurthy, "Template learning with wavelet domain statistical models for pattern synthesis and classification," *Masters thesis*, Arizona State University, Aug. 2008.

Workshops, Invited Talks, Panels, Demonstrations

- Invited Talk: Understanding and mitigating algorithmic bias, New England Statistical Society Symposium (May 2022).
- Tutorial: S. Ghosh, V. Liao, K. N. Ramamurthy, J. Navratil, P. Sattigeri, K. Varshney, and Y. Zhang, "Uncertainty Quantification 360: A Hands-on Tutorial," 9th ACM IKDD CODS and 27th COMAD (Jan. 2022).
- Course: Contributed to the course *Reducing Unfair Bias in Machine Learning* in IBM learning (Mar. 2021).
- Invited Talk: Perspectives on AI from Different Worldviews, IBM Research Africa (Aug. 2021).
- Invited Talk: Understanding and mitigating unwanted bias in Artificial Intelligence, Machine Learning Prague Conference (Feb. 2021).

- Organizer: Topological Data Analysis and Beyond Workshop, NeurIPS (Dec. 2020).
- Invited Talk: Understanding and Mitigating Unwanted Bias in AI, Clarkson University C3S2 Seminar Series (Nov. 2020).
- Democast: Mitigating Discrimination and Bias with AI Fairness 360, `https://twimlai.com/` (May 2020).
- Invited Talk: Understanding and Mitigating Unwanted Bias in AI, Deploy AI Virtual Community Day (Mar. 2020).
- Invited Talk: Understanding and Mitigating Unwanted Bias in AI, MForce 2019, New York City, New York, USA (Oct. 2019).
- Panel Speaker: What is AI and how does it affect us?, Black Network of New York, New York City, New York, USA (Sep. 2019).
- Tutorial: Introducing the AI Fairness 360 toolkit, O'Reilly Artificial Intelligence Conference, New York City, New York, USA (Apr. 2019).
- Plenary Speaker: Algorithmic Fairness (Topic: Fairness in the Absence of Protected Attributes), Information Theory and Applications Workshop, San Diego, CA, USA (Feb. 2019).
- Panel Speaker: Doctoral Consortium, FAT* Conference, Atlanta, GA, USA (Jan. 2019).
- Tutorial: AI Fairness 360, FAT* Conference, Atlanta, GA, USA (Jan. 2019).
- Demonstration: Automatic Generation of Factsheets for Trusted AI in a Runtime Environment, NeurIPS, Montreal, Canada (Dec. 2018).
- Demonstration: PatentAI: IP Infringement Detection with Enhanced Paraphrase Identification, NeurIPS, Montreal, Canada (Dec. 2018).
- Panel Speaker: Finding AI Solutions for Algorithmic Fairness, New York City, NY (Nov. 2018).
- Invited Talk: Applications of TDA to Computational Genomics and Machine Learning (with Aldo Guzman Saenz), IBM Research, Yorktown Heights, NY (Sep. 2018).
- Invited Talk: Bias in Artificial Intelligence/Machine Learning, National Institute of Standards and Technology, Washington DC (Mar. 2018).
- Invited Talk: Computer Vision and Machine Learning Methods for Phenotypic Trait Prediction, University-Industry Consortium Meeting, Indianapolis, IN (Oct. 2015).
- Invited Talk: Computing the Persistent Topology of Data: Application in Model Selection, IBM T. J. Watson Research Center, Yorktown Heights, NY (Jul. 2015).
- Invited Talk: Statistical Approaches for Assessing Health Insurance Market Risk with Privacy Guarantees, Arizona State University, Tempe, AZ (May 2015).
- Invited Talk: Learning Sparse Models for Image Understanding, IBM T. J. Watson Research Center, Yorktown Heights, NY (Oct. 2012).
- Workshop: J-DSP/ESE Tools for Earth Systems and Sustainability, SenSIP center, Arizona State University, Tempe, AZ (Jan. 2012).
- Workshop: Designing Signals and Systems Laboratories using Java-DSP, IEEE FIE Conference, Arlington, VA (Co-convenor with J. J. Thiagarajan and A. Spanias) (Oct. 2011).
- National Instruments Training Session: A Graphical / Textual Approach with NI LabVIEW for Signal Processing/Communications, IEEE DSP Workshop, Sedona, AZ (Jan. 2011).
- Short Course: Analyzing Earth Signals with J-DSP: Real-time, Deep-time, On-line, Geological Society of America, Northeast/Southeast Meeting, Baltimore, MD (Co-convenor with L. Hinnov and A. Spanias) (Mar. 2010).
- Invited Talk: Earth System Signals and J-DSP Modules On Global Sustainability, Natural Hazards and Space Navigation, SenSIP center, Arizona State University, Tempe, AZ (Jan. 2010).

- Invited Talk: Fast Image Registration using Non-stationary Gauss Markov Random Field Templates, KIOS center, University of Cyprus (Nov. 2009).
- Workshop: Designing Multidisciplinary Signal and Data Analysis Laboratories using Java-DSP, IEEE FIE Conference, San Antonio, TX (Co-convenor with J. J. Thiagarajan and A. Spanias) (Oct. 2009).

Conference Oral Presentations

- Benchmarking Bias Mitigation Algorithms using the AI Fairness 360 Toolkit, Information Theory and Applications Workshop, San Diego, CA, USA (Feb. 2019).
- Predictive Modeling of Sorghum Phenotypes with Airborne Image Features, ACM SIGKDD DSFEW Workshop, San Francisco, CA (Aug. 2016).
- Toward Comprehensive Attribution of Healthcare Cost Changes, IEEE ICDM, Atlantic City, NJ (Nov. 2015).
- Identifying Employees for Re-Skilling using an Analytics-Based Approach, IEEE ICDM, Atlantic City, NJ (Nov. 2015).
- Consensus Inference with Multilayer Graphs for Multi-modal Data, Asilomar SSC Conf., Pacific Grove, CA (Nov. 2014).
- Learning Dictionaries with Graph Embedding Constraints, Asilomar SSC Conf., Pacific Grove, CA (Nov. 2012).
- Optimized Measurements for Kernel Compressive Sensing, Asilomar SSC Conf., Pacific Grove, CA (Nov. 2011).
- Interactive signal-processing labs and simulations on iOS devices, IEEE FIE Conf., Rapid City, SD (Oct. 2011)
- The J-DSP/ESE Software for Analyzing Earth Systems Signals, IEEE FIE Conf., Rapid City, SD (Oct. 2011)
- Multilevel Dictionary Learning for Sparse Representation of Images, IEEE DSP Workshop, Sedona, AZ (Jan. 2011) (**Student paper award presentation**).
- Transform Domain Features for Ion-channel Signal Classification using Support Vector Machines, IEEE ITAB Conf., Larnaca, Cyprus (Nov. 2009).

Conference Poster Presentations

- Augmenting Molecular Deep Generative Models with Topological Data Analysis Representations, ICASSP (Virtual) (May 2022).
- Assessing the Promise of Automated Plant Phenotyping for Comprehensive Genetic Mapping, New York Academy of Sciences - Machine Learning Symposium, New York, NY (Mar. 2017).
- Designing Intra-plot Variability Features from High-Throughput Sorghum Phenotypes, Phenome, Tucson, AZ (Feb. 2017).
- A Sorghum Panicle Annotation and Counting Tool, Phenome, Tucson, AZ (Feb. 2017).
- Auto-context Modeling using Multiple Kernel Learning, IEEE ICIP, Phoenix, AZ (Sep. 2016).
- Persistent Homology of Attractors for Action Recognition, IEEE ICIP, Phoenix, AZ (Sep. 2016).
- A Riemannian Framework for Statistical Analysis of Topological Persistence Diagrams, DIFF-CVML Workshop, IEEE CVPR, Las Vegas, NV (Jul. 2016)
- Persistent topology of decision boundaries, IEEE ICASSP, Brisbane, Australia (Apr. 2015).
- Subspace Learning using Consensus on the Grassmannian Manifold, IEEE ICASSP, Brisbane, Australia (Apr. 2015).
- Quantile Regression for Workforce Analytics, IEEE GlobalSIP Conf., Austin, TX (Dec. 2013).

- A Java-DSP Interface for Analysis of the MP3 algorithm, IEEE DSP Workshop, Sedona, AZ (Jan. 2011).
- An Interactive Speech Coding Tool using LabVIEW, IEEE DSP Workshop, Sedona, AZ (Jan. 2011)
- An Interactive Learning Environment for DSP, ASEE Annual Conf., Louisville, KY (Jun. 2010)
- Fast Image Registration using Non-stationary Gauss Markov Random Field Templates, IEEE ICIP Conference, Cairo, Egypt (Nov. 2009).
- On the Use of Java-DSP in Earth systems, ASEE Annual Conference and Exposition, Pittsburgh, PA (Jun. 2008).
- Multi-resolution Pattern Learning using Wavelet and Curvelet Domain Statistical Models, ASU SenSIP Workshop, Sedona, AZ (Unpublished) (May 2008).
- Sparse Representation for Pattern Classification using Learned Dictionaries, ASU SenSIP Workshop, Sedona, AZ (Unpublished) (May 2008).
- Teaching Speech Signal Processing and Coding using LabVIEW, ASU SenSIP Workshop, Sedona, AZ (Unpublished) (May 2008).
- On the Use of J-DSP in Earth Systems, ASU SenSIP Workshop, Sedona, AZ (Unpublished) (May 2008).

PATENTS

1. E. C. Vijil, K. N. Ramamurthy, P. Das, S. C. Hoffman, and Y. Z. Schiff, "Methods for efficient encoding of 3D geometric information in a deep generative framework," U.S. Patent Application No. 17/805481, 06 June 2022.
2. E. Daly, K. N. Ramamurthy, Ö. Alkan, and S. Speakman, "System and Method for Designing a Fair Machine Learning Model through User Interaction," U.S. Patent Application No. 17/655803, 22 March 2022.
3. A. Dhurandhar, K. N. Ramamurthy, K. Ahuja, and V. Arya, "A System and Method for Generating Locally Invariant Explanations," (To be filed).
4. Z. B. Tariq, K. N. Ramamurthy, D. Wei, and A. Dhurandhar. "Post-hoc Local Explanations of Black-Box Similarity Learners," U.S. Patent Application No. 17/382310, 21 July 2021.
5. D. Wei, K. N. Ramamurthy, K. Shanmugam, K. Ahuja, M. Kocaoglu, and P. Sattigeri. "System and Method for Conditionally Independent Data Generation for Fairness Applications," U.S. Patent Application No. 17/368925, 07 July 2021.
6. D. Wei, E. Daly, K. N. Ramamurthy, M. Mattetti, Ö. Alkan, R. Nair. "Moving Decision Boundaries of a Machine Learning Model Through Data Manipulation," U.S. Patent Application No. 17/308310, 05 May 2021.
7. D. Wei, F. Calmon, and K.N. Ramamurthy, "Optimized Score Transformation for Fair Classification," U.S. Patent Application No. 16/888413. 29 May 2020.
8. K.N. Ramamurthy, P. Das, P.-Y. Chen, and P. Zhao, "Method and System for Mitigating Adversarial Effects in AI/ML Systems," U.S. Patent Application No. 16/702817. 04 December 2019.
9. A. Coston, D. Wei, K. N. Ramamurthy, K. R. Varshney, S. Speakman, S. Chakraborthy, and Z. Mustahsan, "System and Method for Enhancing Fairness in Transfer Learning with Missing Protected Attributes," U.S. Patent Application No. 16/692974. 22 November 2019.
10. A. Dhurandhar, B. Vinzamuri, and K. N. Ramamurthy, "System and Method for learning Model Agnostic Multilevel Explanations," U.S. Patent Application No. 16/668267. 30 October 2019.
11. D. Saha, K. N. Ramamurthy, K. R. Varshney, M. Bhide, P. Lohia, and R. Puri, "System and Method for Post Hoc Improvement of Instance-Level and Group-Level Prediction Metrics," U.S. Patent Application No. 16/214703. 10 December 2018.

12. D. Wei, E. A. Ray, G. Y. C. Yuen-Reed, and K. N. Ramamurthy, "A System and Method for Health Insurance Cost Prediction Reporting via Private Transfer Learning," U.S. Patent Application No. 15/964856. 27 April 2018.
13. D. Wei, G. Y. C. Yuen-Reed, J. Yang, K. N. Ramamurthy, K. N. Tran, R. Chandra, and S. N. Mahatma, "A System and Method for Managing Jobs in Transactional Data Science Pipelines," U.S. Patent Application No. 15/835824. 08 Dec 2017.
14. D. Wei, D. A. Katz, E. A. Ray, G. Y. C. Yuen-Reed, K. N. Ramamurthy, K. N. Tran, M. Singh, and R. Chandra, "Early Healthcare Cost Prediction and Risk Identification," U.S. Patent Application No. 15/835824. 05 Dec 2017.
15. J. J. Thiagarajan, K. N. Ramamurthy, D. Frakes, and A. Spanias, "Measuring glomerular number from kidney MRI images," U.S. Patent No. 9,779,497. 3 October 2017.
16. J. J. Thiagarajan, K. N. Ramamurthy, D. Frakes, and A. Spanias, "Kernel sparse models in automated tumor segmentation," U.S. Patent No. 9,710,916. 18 July 2017.
17. C.-C. Lin, S. U. Pankanti, K. N. Ramamurthy, A. Y. Aravkin, and J. Smith "System and method for perspective preserving stitching and summarizing views", U.S. Patent No. 9,569,874. 14 February 2017.
18. G. Yuen-Reed, D. A. Katz-Rogozhnikov, A. Mojsilović, K. N. Ramamurthy, and D. Wei, "Attribution of cost changes using multiple factors", U.S. Patent Application US2014/940,560, November 2015.
19. J. H. Bauer, D. Fang, A. Mojsilović, K. N. Ramamurthy, K. R. Varshney, and J. Wang, "Method, system, and computer program product for automating expertise management through social and enterprise data," U.S. Patent No. 10,643,140. 5 May, 2020.
20. A. Mojsilović, K. N. Ramamurthy, K. R. Varshney, D. Wei, G. Yuen-Reed, and S. Mahatma, "Method for market risk assessment for healthcare applications", U.S. Patent Application US2014/699,482. April 2015.
21. K.N. Ramamurthy, J. J. Thiagarajan, P. Sattigeri, and A. Spanias, "Ensemble sparse models for image analysis and restoration," International Patent Application PCT/US2014/028653. March 2014.
22. K. N. Ramamurthy, C.-C. Lin, S. U. Pankanti, A. Y. Aravkin, and R. Viguier, "A scalable, accurate and robust system and method of distributed reconstruction of scene and image parameters from projected data" (Filed in 2016).

AWARDS AND HONORS

- IBM Outstanding Technical Achievement Award for *Science of accurate, robust, and generalizable AI* (2022)
- IBM Outstanding Technical Achievement Award for *Science of Uncertainty Quantification* (2022)
- IBM Watson Advertising & Weather Outstanding Technical Achievement Award for *Detect and Mitigate Bias* (2022)
- Outstanding Reviewer Award - ICLR (2021)
- IBM Corporate Technical Award for *Contributions to Trustworthy AI* (2021).
- IBM Outstanding Technical Achievement Award for *Contributions to Trustworthy AI* (2020).
- Significant Contributor Award – Open-Source Recognition Program (2020).
- IBM outstanding research accomplishment award for "Trustworthy AI" (Nov. 2019).
- IBM research accomplishment award for "Dictionary- and Sparsity-Driven Imaging" (Nov. 2018).
- Best application paper award at the IEEE DSAA conference (Oct. 2015).
- Best paper award (honorable mention) at the SIAM data mining conference (Apr. 2015).
- Honorable mention for reproducibility in signal processing at the IEEE MLSP conference (Sep. 2014).

- Travel grant award for the IMA annual program year workshop on Topological Data Analysis (Oct. 2013).
- Best student paper award (finalist) at the IEEE BIBE conference (Nov. 2012).
- University graduate fellowship by the School of ECEE, Arizona State University (May - Aug. 2012).
- Teaching assistantship by the School of ECEE, Arizona State University (Jan. 2009 - Dec. 2011).
- Travel grant award by the Graduate and Professional Students Association (GPSA) for the Asilomar SSC conference (Nov. 2011).
- Best student paper award (finalist) at the IEEE DSP conference (Jan. 2011).
- Travel grant award by the IEEE Signal Processing Society for the IEEE ICIP conference (Nov. 2009).
- Helios scholar at the Translational Genomics Research Institute, Phoenix, AZ (Jun. - Jul. 2009).
- Award for excellence at HCL Technologies, Chennai, India (Apr. 2006).
- Department gold medal during undergraduate studies (Apr. 2004).

GRANT PROPOSALS

- Experience participating in several internal (IBM) grant proposals and also in external proposals with US funding agencies NSF and ARPA-E.
- Funded proposal: Automated Sorghum Phenotyping and Trait Development Platform, Funding Agency: ARPA-E, Partners: Purdue University, IBM Research, University of Queensland, Grant amount: 6.66 million USD, Project term: August 2015 - May 2019.

SERVICE

Professional Service

- NSF panel reviewer
- Associate Editor: Digital Signal Processing Journal
- Reviewer for Journals: Digital Signal Processing, IEEE Transactions on Signal Processing, IEEE Transactions on Image Processing, Pattern Recognition Letters, Journal of Visual Communication and Image Representation, Information Sciences, IEEE Journal of Selected Topics in Applied Earth Observations and Remote Sensing, Pattern Recognition, Remote Sensing Letters, International Journal of Computer Vision.
- Reviewer for Conferences: Neural Information Processing Systems (NeurIPS), Artificial Intelligence and Statistics Conference (AISTATS), IEEE International Conference on Acoustics, Speech and Signal Processing (ICASSP), ICML, ICLR.
- Student member of SenSIP center at ASU; co-organized several seminars and workshops (2006-2013).
- Mentored junior graduate students (2011-2013).

Graduate Committees

- Kai-Wei Yang, Purdue University (Graduated 2021)
- Weizhi Li, Arizona State University (Graduated 2022)

Community Service

- Grant team member in the student chapter of the Indian classical music organization, SPICMACAY (2006-2011).

PROFESSIONAL MEMBERSHIPS

IEEE Member