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Rahul Parhi

talks & presentations

Tutorials

1. *"A Function-Space Tour of Data Science"*. Conference on Parsimony and Learning (CPAL), Stanford, California, USA. Mar. 2025. URL: `https://function-space-tour.github.io/cpal/`.

Invited Talks in University Seminars and Colloquia

23. *"Do Neural Networks Generalize Well? Low-Norm vs. Flat Minima"*. Machine Learning Seminar, Georgia Institute of Technology. Sept. 2025.

22. *"Function-Space Models for Deep Learning"*. Applied Math/PDE/Data Science Seminar, Department of Mathematics, University of California, Santa Barbara. May 2025.

21. *"Function-Space Models for Deep Learning"*. Colloquium on Signal Processing and Machine Learning, Department of Information Technology and Electrical Engineering, ETH Zürich. Apr. 2025.

20. *"Characteristic Functionals and the Innovations Approach to Stochastic Processes With Applications to Random Neural Networks"*. Probability Seminar, Department of Mathematics, University of California, San Diego. Feb. 2025.

19. *"Function-Space Models for Deep Learning"*. Joint Seminar on Mathematical Data Science, PSU + Purdue + UMD. Feb. 2025.

18. *"Function-Space Models for Deep Learning"*. Frontiers in Electrical Engineering, Caltech. Feb. 2025.

17. *"Function-Space Models for Deep Learning"*. Mathematics of Data Science Seminar, Department of Mathematics, University of California, San Diego. Jan. 2025.

16. *"Deep Learning Meets Sparse Regularization"*. Seminar, Department of Electrical Engineering and Computer Science, Massachusetts Institute of Technology. Mar. 2024.

15. *"Deep Learning Meets Sparse Regularization"*. Seminar, Department of Electrical and Computer Engineering, University of California, San Diego. Feb. 2024.

14. *"Deep Learning Meets Sparse Regularization"*. Seminar, Department of Applied Mathematics, University of Colorado, Boulder. Feb. 2024.

13. *"Deep Learning Meets Sparse Regularization"*. Seminar, Department of Computing Science, University of Alberta. Feb. 2024.

12. *"Deep Learning Meets Sparse Regularization"*. Seminar, Department of Mathematics, Rutgers University. Jan. 2024.

11. *"Deep Learning Meets Sparse Regularization"*. School of Science and Engineering Seminar, Chinese University of Hong Kong, Shenzhen. Jan. 2024.

10. *"Deep Learning Meets Sparse Regularization"*. Seminar, Departments of Electrical and Systems Engineering + Statistics and Data Science, Washington University in St. Louis. Dec. 2023.

9. *"Deep Learning Meets Sparse Regularization"*. Chair for Mathematical Information Science Seminar, ETH Zürich. Dec. 2023.

8. *"Deep Learning Meets Sparse Regularization"*. Statistics Seminar, Université Catholique de Louvain. Nov. 2023.

7. *"Deep Learning Meets Sparse Regularization"*. Math Machine Learning Seminar, Max Planck Institute for Mathematics in the Sciences + University of California, Los Angeles. Sept. 2023.

6. *"Regularizing Neural Networks via Radon-Domain Total Variation"*. Mathematical Institute for Data Science (MINDS) Seminar, Johns Hopkins University. Nov. 2022.

5. *"On BV Spaces, Splines, and Neural Networks"*. Analysis Seminar, Department of Mathematics, University of Wisconsin–Madison. Nov. 2021.

4. *"What Kinds of Functions Do Neural Networks Learn?"* Working Group on Mean Field Neural Networks, Simons Institute for the Theory of Computing. Nov. 2021.

3. *"A Representer Theorem for Single-Hidden Layer Neural Networks"*. Institute for Foundations of Data Science (IFDS) Seminar, University of Wisconsin–Madison. July 2020.

2. *"Neural Networks Learn Splines"*. Human, Animal, and Machine Learning: Experiment and Theory (HAMLET) Seminar, University of Wisconsin–Madison. Oct. 2019.

1. *"Minimum 'Norm' Neural Networks and Splines"*. Institute for Foundations of Data Science (IFDS) Seminar, University of Wisconsin–Madison. Sept. 2019.

Invited Talks at Conferences and Workshops

7. *"Are Global and Local Minima of Shallow Neural Networks Fundamentally Different?"* IFDS Workshop on Theoretical Foundations of Applied AI, University of Washington, Seattle, Washington, USA. Aug. 2025.

6. *"A Dual-Certificate Analysis for Neural Network Optimization Problems"*. International Conference on Continuous Optimization (ICCOPT), Los Angeles, California, USA. July 2025.

5. *"Deep Learning Meets Sparse Regularization"*. Mathematics of Machine Learning Session, Canadian Mathematical Society (CMS) Winter Meeting, Richmond, British Columbia, Canada. Nov. 2024.

4. *"The Role of Sparsity in Learning With Overparameterized Deep Neural Networks"*. Learning Functions with Low-Dimensional Structure Using Neural Networks Minisymposium, SIAM Conference on Mathematics of Data Science (MDS), Atlanta, Georgia, USA. Oct. 2024.

3. *"A Banach-Space View of Neural Network Training"*. Nonsmooth and Hierarchical Optimization in Machine Learning Session, International Symposium on Mathematical Programming (ISMP), Montréal, Québec, Canada. July 2024.

2. *"On the Sparsity-Promoting Effect of Weight Decay in Deep Learning"*. Rising Stars Session, Conference on Parsimony and Learning (CPAL), Pok Fu Lam, Hong Kong. Jan. 2024.

1. *"A Banach Space Representer Theorem for Single-Hidden Layer Neural Networks"*. Young Researchers Spotlight Session, SLowDNN Workshop, Online. Oct. 2020.

Conference Paper Oral Presentations

3. *"Upper Bounds on Averaged Sampling Numbers for General Model Classes"*. International Conference on Sampling Theory and Applications (SampTA), Vienna, Austria. July 2025.

2. *"Modulation Spaces and the Curse of Dimensionality"*. International Conference on Sampling Theory and Applications (SampTA), New Haven, Connecticut, USA. July 2023.

1. *"On Continuous-Domain Inverse Problems with Sparse Superpositions of Decaying Sinusoids as Solutions"*. IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP), Singapore. May 2022.

Last Updated: August 22, 2025