

Abijith Jagannath Kamath

PhD Student, Department of Electrical Engineering
Indian Institute of Science, Bengaluru

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EDUCATION

Indian Institute of Science (IISc.), Bengaluru, India 2020 – present
PhD in Electrical Engineering CGPA: 8.90/10
Thesis Title: Neuromorphic Sampling — Theory and Algorithms

Selected Coursework: Time-Frequency Analysis, Convex Optimisation and Applications,
Digital Image Processing, Pattern Recognition and Neural Networks,
Advanced Convex Optimisation, Computational Imaging

National Institute of Technology Karnataka (NITK), Surathkal, India 2015 – 2019
Bachelor of Technology in Electrical and Electronics Engineering CGPA: 9.17/10
Project Title: Signals, Shapes and Fourier Descriptors

Selected Coursework: Digital Signal Processing, Matrix Theory and Stochastic Processes,
Advanced Digital Signal Processing, Information Theory

WORK EXPERIENCE

Indian Institute of Science 2019
Project Assistant

- Project title: Neuromorphic Sampling
- Funding agencies: Pratiksha Trust, Institute of Eminence (IoE) Fund

AWARDS AND PROFESSIONAL ACTIVITIES

- Awards
 - Ministry of Education, Government of India *Prime Minister's Research Fellowship* 2020 – 25
 - Department of Electrical Engineering, IISc. *Outstanding Teaching Assistant Award* 2025
- Professional Activities (selected)
 - *Vice-Chair*, IEEE IISc. SPS Student Chapter 2020 – 21
 - *Student Branch Secretary*, IEEE NITK Student Branch 2018 – 19
- Technical Programme Committee (TPC) Member as a Reviewer
 - Elsevier Signal Processing
 - IEEE Int. Conf. Acoustics, Speech and Signal Process. (ICASSP)
 - IEEE Int. Conf. Sampling Theory and Applications (SampTA)
 - IEEE Int. Conf. Signal Process. Comm. (SPCOM)
 - Asilomar Conference on Signals, Systems and Computers
 - National Conference on Communications (NCC)

REFEREES

Prof. Chandra Sekhar Seelamantula
Professor, Department of Electrical Engineering,
Indian Institute of Science

E-mail: css@iisc.ac.in
Webpage | [Google Scholar](#)

Prof. CMC Krishnan
Associate Professor, Department of Electrical and Electronics Engineering
National Institute of Technology Karnataka

E-mail: cmckrishnan@nitk.edu.in
[Google Scholar](#)

TEACHING

Teaching Assistant at IISc.

- E9 310 Computational Imaging 2024
- E9 222 Signal Processing in Practice 2023
- E9 241o Digital Image Processing 2022 – 23
- E9 213 Time-Frequency Analysis 2021 – 23

PMRF Teaching Duties

- (RVCE) AI 41 Statistics for Data Science 2024
- (NITK) EE 313/386 Digital Signal Processing 2021 – 22
- (NITK) EE 343 Statistical Foundations for Electrical Engineers 2021 – 23
- (NITK) EE 143 Mathematics for Electrical Engineers 2019

SELECTED PUBLICATIONS

Journal Articles

1. K. K. R. Nareddy, **A. J. Kamath**, and C. S. Seelamantula, "Tight-frame-like analysis-sparse recovery using non-tight sensing matrices," *SIAM J. Imag. Sci.*, 2024. DOI: [10.1137/23M1625846](https://doi.org/10.1137/23M1625846)

Preprints

3. **A. J. Kamath** and C. S. Seelamantula, "Neuromorphic sampling of sparse signals," 2023. arXiv: [2310.15750](https://arxiv.org/abs/2310.15750) [eess.SP]. [Online]. Available: <https://arxiv.org/abs/2310.15750>
2. **A. J. Kamath** and C. S. Seelamantula, "Neuromorphic sampling of signals in shift-invariant spaces," 2023. arXiv: [2306.05103](https://arxiv.org/abs/2306.05103) [eess.SP]. [Online]. Available: <https://arxiv.org/abs/2306.05103>
1. **A. J. Kamath**, S. Rudresh, and C. S. Seelamantula, "Time encoding of finite-rate-of-innovation signals," 2021. arXiv: [2107.03344](https://arxiv.org/abs/2107.03344) [eess.SP]. [Online]. Available: <https://arxiv.org/abs/2107.03344>

Conference Articles

10. **A. J. Kamath** and C. S. Seelamantula, "Neuromorphic unlimited sampling for high-dynamic-range video acquisition," in *IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, (invited paper), 2025
9. **A. J. Kamath**, A. S. Bhandiwad, and C. S. Seelamantula, "On the design of weakly-convex regularizers for solving linear inverse problems," in *IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2025
8. **A. J. Kamath**, K. K. R. Nareddy, and C. S. Seelamantula, "Method of alternating proximations for solving linear inverse problems," in *Proc. IEEE Int. Conf. Signal Process. Comm. (SPCOM)*, 2024. DOI: [10.1109/SPCOM60851.2024.10631653](https://doi.org/10.1109/SPCOM60851.2024.10631653)
7. **A. J. Kamath** and C. S. Seelamantula, "Neuromorphic sensing meets unlimited sampling," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2024. DOI: [10.1109/ICASSP48485.2024.10447840](https://doi.org/10.1109/ICASSP48485.2024.10447840)
6. K. K. R. Nareddy, **A. J. Kamath**, and C. S. Seelamantula, "Image restoration with generalized L_2 loss and convergent plug-and-play prior," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2024. DOI: [10.1109/ICASSP48485.2024.10446244](https://doi.org/10.1109/ICASSP48485.2024.10446244)
5. A. S. Bhandiwad, **A. J. Kamath**, S. Asokan, *et al.*, "Variational analysis of adversarial regularization for solving inverse problems," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2024. DOI: [10.1109/ICASSP48485.2024.10446385](https://doi.org/10.1109/ICASSP48485.2024.10446385)
4. **A. J. Kamath** and C. S. Seelamantula, "Multichannel time-encoding of finite-rate-of-innovation signals," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2023. DOI: [10.1109/ICASSP49357.2023.10096150](https://doi.org/10.1109/ICASSP49357.2023.10096150)
3. **A. J. Kamath** and C. S. Seelamantula, "Differentiate-and-fire time-encoding of finite-rate-of-innovation signals," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2022. DOI: [10.1109/ICASSP43922.2022.9746159](https://doi.org/10.1109/ICASSP43922.2022.9746159)

2. S. Rudresh, **A. J. Kamath**, and C. S. Seelamantula, "A time-based sampling framework for finite-rate-of-innovation signals," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2020, pp. 5585–5589. DOI: [10.1109/ICASSP40776.2020.9053120](https://doi.org/10.1109/ICASSP40776.2020.9053120)
1. **A. J. Kamath**, S. Rudresh, and C. S. Seelamantula, "FRI modelling of Fourier descriptors," in *Proc. IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP)*, 2019, pp. 5092–5096. DOI: [10.1109/ICASSP.2019.8682685](https://doi.org/10.1109/ICASSP.2019.8682685)

INVITED TALKS AND DEMONSTRATIONS

4. S. Kulur, D. Balasubramanian, **A. J. Kamath**, *et al.*, *Neuromorphic unlimited sampling beyond bandlimited signals*, IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP), Show-and-tell Demo, 2025
3. S. S. Yadav, K. S. Akash, A. J. Kamath, *et al.*, "Neuromorphic radar for gesture recognition," in *IEEE ICASSP Show-and-tell Demo*, 2025
2. S. Kulur, S. Anand, **A. J. Kamath**, *et al.*, *Modulo sampling meets neuromorphic encoding — A hardware proof*, IEEE Int. Conf. Acoust., Speech, Signal Process. (ICASSP), Show-and-tell Demo, 2024
1. **A. J. Kamath** and C. S. Seelamantula, "Neuromorphic sampling," in *Asilomar Conf. Signals Syst. Comput. (ACSSCS)*, 2021

PATENTS

1. S. Kulur, S. Anand, **A. J. Kamath**, *et al.*, *A neuromorphic unlimited sampling method and a plug-and-play system thereof*, Indian Patent 202441018543 (in process), 2024