Shreyas Krishnan

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RESEARCH INTERESTS

Large language model evaluation , data selection & Gradient-Informed training , neuro+ML for language (iEEG), efficient training/benchmarking at scale, vision & affective computing.

EDUCATION

Birla Institute of Technology & Science (BITS) Pilani, Goa, India — Aug 2020 – Aug 2025
B.E. Electronics & Communication Engineering & M.Sc. Mathematics (Dual Degree); Minor in Data Science
Thesis Title: *Beyond modalities: robust neural representation of language in the brain.* Link

ACADEMIC EXPERIENCE

UC Berkeley – Data Innovation and AI Lab — Berkeley, California, USA
Research Assistant — Aug 2025 – Present

- Ongoing Research on how access to pirated books (Books3 dataset) shapes large language model performance, using a novel "name cloze" evaluation across 12,000+ books and causal identification based on publication-year variation.. NBER Working Paper 33598. Advisor: **Dr. Abhishek Nagaraj**.

Harvard University – Kreiman Lab — Boston, Massachusetts, USA
Research Intern (Neuro-AI) — Jan 2024 – Aug 2025

- Analyzed intracranial iEEG during language tasks; trained ML decoders for grammatical/semantic features; mapped region-specific effects.
- Co-designed an LLM-based real-time memory retrieval system; evaluated Gemini 2.5, GPT-o3, Leta, Zep; built benchmarking/eval pipeline.
- Manuscripts: Nature (final edits); NeurIPS 2025 submission (preprint linked below). Advisor: **Dr. Gabriel Kreiman**.

Nanyang Technological University (NTU) — Singapore
Research Intern (EEG/ML & Vision) — Oct 2022 – May 2024

- EEG emotion recognition with ResNet/hybrid models: mean accuracy 99.34% (DREAMER), 92.18% (DEAP); first-author IET book chapter.
- Vision Transformer for remote hand-raise detection; $93.82\% \pm 2.16\%$ (5-fold CV); accepted to IEEE CIACON 2025.
- Advisors: **Dr. Amalin Prince**, **Dr. Yuvaraj Rajamanickam**.

National Institute of Advanced Studies (NIAS) — Bangalore, India
Research Intern (Model Compression) — May 2023 – Present

- Developed Granger-causality-guided pruning for interpretability and efficiency; first-author IJSCAI 2025 paper. Advisor: **Dr. Snehanshu Saha**.

Indian Institute of Technology Madras — Chennai, India
Research Intern (Detection/Segmentation) — Jun 2023 – Aug 2023

- Implemented FAIR-style architectures for object detection and instance segmentation; ran ablations and analysis. Advisor: **Dr. Ganapathy Krishnamurthy**.

OnFinance AI — Bangalore, India
AI Engineer Intern (LLM/RAG) — May 2024 – Aug 2024

- Fine-tuned LLaMA 3 and VLMs for financial analysis; OCR-based extraction & automated report generation with RAG; improved citation quality.

PUBLICATIONS

Journal & Conference

- **S. Krishnan**, L.Murugan, A. Hassouneh,Y. Rajamanickam, A. Prince, T. Thiyagasundaram, M. Murugappan (2024). *Emotion Recognition using ResNet Feature Extraction on EEG Signals.* IET (UK), Book Chapter. DOI — print
- **S. Krishnan** (2025). *Vision Transformer for Hand-Raise Recognition in Remote Learning* ($93.82\% \pm 2.16\%$, 5-fold CV). IEEE CIACON 2025. print

- **S. Krishnan**, A. Das (2025). *Harnessing Chaos and Causality in Neural Networks: A Pruning Strategy for Enhanced Performance and Explainability.* IJSCAI 2025. print
- **S. Krishnan**, A.Thamma. *Human-Prior Correction: Post-hoc Calibration that Aligns Vision Models with Human Uncertainty.* Accepted at ICCV - HiCV Workshop 2025. Under Review ICLR 2026

Preprints / Under Review

- **S. Krishnan**, A. Thamma (2025). *Plan–Check–Revise: A Token-Paritized Two-Agent Protocol for Verifiable Math Reasoning.* Submitted to NeurIPS 2025 Workshop MATHAI.
- **S. Krishnan**, A. Thamma (2025). *Hallucination Guardrails for VLM Instructions: Sensor–Language Conflict Detection for Safer Human–Robot Interaction.* Submitted to IEEE IROS 2025 Workshop HEAI.
- S. Madan, **S. Krishnan**, G. Kreiman (2025). *Real-time Memory Retrieval with LLMs: Benchmarking Context Surfacing.* under review (NeurIPS 2025). preprint
- D. Mayo,C.Zhang **S. Krishnan**, A.Shaw, B. Katz, A.Barbu, B.Cheung (supervision) . *Look But Don't Touch: Gradient Informed Selection Training.* Under Review ICLR 2026

SELECTED COURSES

Advanced/Graduate-level Topics

- Machine Learning (Course Rep, BITS-F464, Aug–Dec 2023)
- Optimization
- Statistical Inference & Applied Statistical Methods
- Foundations of Data Science

Undergraduate Core

- Linear Algebra; Probability & Statistics; Numerical Analysis
- Digital Signal Processing (DSP)
- Multivariate Calculus; Ordinary Differential Equations
- Discrete Mathematics; Control Systems

AWARDS & DISTINCTIONS

Center for Brains, Minds and Machines, Massachusetts Institute of Technology Woods Hole, MA
Selected (fully funded) among ∼30 global graduate students/postdocs worldwide for a deep-dive course on the science of intelligence. Aug 2025

NTU CCDS PhD Offer Singapore
Admitted to the PhD program (offer with service bond). 2024

Carnegie Mellon University MS Admit Pittsburgh, USA 2024

OTHER EXPERIENCES

Course Representative, Machine Learning (BITS-F464) Aug 2023 – Dec 2023

- Coordinated lectures/labs; liaised on assignments and grading logistics.

Student Clubs & OSS 2022 – 2024

- Society of AI & Deep Learning (SAiDL): mixup on TREC (GitHub)
- Electronics & Robotics Club: ROS path planning (Dijkstra) (GitHub)

SKILLS

- **Programming:** Python, MATLAB, C/C++, JavaScript
- **ML/Tools:** PyTorch, TensorFlow, scikit-learn, OpenCV, Pandas/NumPy, Linux, Git, Weights & Biases, basic distributed training
- **NLP/Systems:** OCR pipelines, RAG, LLM fine-tuning/eval; iEEG/EEG processing
- **Design:** Adobe Illustrator, Inkscape, Photoshop

REFERENCES

Available upon request. (Letters: Dr. Gabriel Kreiman : gabriel.kreiman@tch.harvard.edu,
Dr. Hanspeter Pfister : pfister-admin@seas.harvard.edu)