RITOBRATA GHOSH

Deep Learning Research Engineer with strong foundations in Mathematics and Physics, passionate in Scientific Machine Learning

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scholar.google.com//citations?user=R_X74h0AAAAJ

WORK EXPERIENCE

SpaceXAI

Software Engineering Tutor and Multilingual Tutor

Jan 2026 – Present (Remote) California, US

- Working as an AI tutor by teaching coding models, working on Grok Build among other products.
- Working as a Multilingual Tutor by evaluating models, supervising data creation, model evaluation for LLMs - mainly future iterations of Grok.

Donnington Group

Data Scientist

Aug 2025 – Oct 2025 (Remote) California, US

- Developed multiple in-house Computer Vision models from scratch utilizing internal data for automation of ID verfication. Utilized PyTorch, fast.ai, transfer learning, Convolutional Neural Networks, and statistical methods to develop local, independent Deep Learning solutions that are free from outside influences.

Neuromatch Academy

Lead Teaching Assistant

Jun 2026 – Aug 2026 (Remote) Oregon, US

- Lead TA for Computational Neuroscience for a diverse group of students from all over the world, helping them learn basics of Linear Algebra, Calculus, Statistics, and use of Deep Learning in Neuroscience.

Artelus

Data Scientist

Dec 2023 – Feb 2024 Kolkata, India

- Developed and improved Deep Learning models to detect human eye pathologies, focused on Diabetic Retinopathy using ViT, CNNs.

Packt

Technical Reviewer

Sep 2022 – Jun 2024 (Remote) Birmingham, UK

- Reviewed a book on advanced PyTorch where the chapter consists of using PyTorch for advanced problem-solving: multimodal models, Deep RL, Generative Adversarial Networks, etc. as well as practical problems like training on multiple GPUs, code profiling, etc.

Akbar Brothers

Deep Learning Research Engineer Consultant

April 2021 – June 2023 (Remote) Colombo, Sri Lanka

EDUCATION

M.Sc. (Computer Science) - 9.04/10 CGPA

Maulana Abul Kalam Azad University of Technology (formerly WBUT)

October 2021 – July 2023

B.Sc. (Physics, Mathematics, CS) - First Class

University of Calcutta

2017 – 2021

Higher Secondary - 85%

West Bengal Council of Higher Secondary Education - PCMB

2017

Secondary - 95%

West Bengal Board of Secondary Education

2015

PROJECTS

Learn JAX: From Linear Regression to Neural Networks (Link)

- Wrote a full tutorial on how to use the JAX framework for basic Machine Learning tasks. Introduced the functional paradigm for Deep Learning. Won the Google Open Source Software Expert Prize for this project.

CLIP for Satellite Images

- I worked on augmentation methods, and other hyperparameter optimization techniques to increase the overall accuracy of the model.
- Open-Source Deep Learning model that generates captions for satellite imagery. We used transfer-learning to fine-tune OpenAI CLIP for satellite data. Training was done for multiple hours on a TPUv3-8. We used JAX/Flax and PyTorch for this model.

Dall-E Mini (Now Crayion)

- Created the Dall-E Mini text to image model with a team where I worked on the seq2seq part of the coding.
- The project was covered in a New York Times article by Cade Metz.

Functional Connectivity Differences Between ECoG Signals During Motor Movement vs. Motor Imagery

- Group project of Neuromatch Academy Summer School- Computational Neuroscience track. Differentiating ECoG signals in patients for motor movement versus imagined movement leveraging Machine Learning.

- Cleaned, wrangled a huge dataset (>60 GB) of images, set up end-to-end Deep Learning training pipeline for single-label image classification involving experimentation and developing Deep Learning architectures like DenseNet, ResNet, EfficientNet
- Used improvement techniques like data augmentation, oversampling, undersampling, gradual freezing, discriminative learning rates, ensemble methods, etc. Achieved accuracy of >91% in the classification task.
- Worked with tabular data of 200k rows involving features to predict numerical data with XGBoost. Achieved 98% accuracy.
- Stack: Python, PyTorch, fast.ai, Scikit-Learn, XGBoost, Pandas, Python, Colab Pro.

Stanford University

Section Leader (Teaching Assistant) of Code In Place Program

Apr 2021 – June 2021 Remote

- Taught introductory Python, Computer Science concepts, problem solving to about 12 students from India, Bangladesh, and the USA in five sessions of 90 minutes each. Students were of various ages and came from diverse backgrounds including students from Fine Arts backgrounds. For many students, it was the first introduction to programming and CS ever. The material was based on the first-half of the Stanford CS106A course.
- Received direct training from Stanford Professors Mehran Sahami, Chris Piech, and Julie Zelenski. Received further training from Stanford-appointed teacher mentors.

AWARDS AND ACHIEVEMENTS

- Winner of Google Open Source Software Expert Prize (June 2022)
- 1st Place in JAX/Flax Deep Learning Community Event Organized by Hugging Face and Google Cloud (July 2021)
- 3rd Place in JAX/Flax Deep Learning Community Event Organized by Hugging Face and Google Cloud (July 2021)
- 3rd Place in District Level in West Bengal State Student Youth Science Fair awarded by Department of Youth Services, Government of West Bengal (September 2015)
- Best Speaker of Legislative Assembly in District Level in Youth Parliament Competition, awarded by Department of Parliamentary Affairs, Government of West Bengal (December 2015)

TECHNICAL SKILLS

- **Subjects**: Machine Learning, Deep Learning, Computer Vision
- **Languages**: Python, C, C++, Julia, OCaml (Beginner), LaTeX, Bash, SQL
- **Frameworks**: PyTorch, fast.ai, NumPy, JAX, Keras, Flask, Scikit-learn
- **Devtools**: Agentic AI, Linux, Jupyter Notebook, Git, GitHub, AWS Sagemaker, IBM Cloud, Google Cloud Platform, Claude, Codex, Pi

Training a Hamiltonian Neural Network

- Trained a Hamiltonian Neural Network for learning the dynamics of a rigid pendulum. Trained the derivatives of the network directly from the supervising signal of true system Hamiltonians.

PUBLICATIONS

- Ghosh, Ritobrata: *Non-Linear Dynamics Through Linear Algebraic Lenses: Attempting to Learn the Trajectories of the Logistic Map with Artificial Neural Networks*, Zenodo, doi: 10.5281/zenodo.7840239
- *TAKING JULIA FOR A TEST DRIVE: My First Encounter With Julia* by Ritobrata Ghosh, Towards Data Science

MOOCS AND CERTIFICATIONS

- Computational Neuroscience, Neuromatch Academy
- Deep Learning Specialization, deeplearning.ai
- High Performance Computing, Gray Scott School 2026
- Machine Learning, Stanford/Coursera
- IBM Data Science Professional Certificate, IBM/Coursera

PERSONAL SKILLS

- Languages: English, Hindi, Bengali.
- Excellent communication skills- both spoken and written.
- Teaching complicated topics, including science communication.
- Comfortable working Independently.
- Ability to learn very fast.

HOBBIES

- Reading books- long novels and informative non-fiction.
- Learning to play music.
- Poetry recitation and voice acting.