Saikat Roy

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OBJECTIVE

An experienced machine learning (ML) researcher with extensive academic, practical knowledge and high-impact publications. Specialization in Deep Learning (DL) for classification & segmentation, with extensive understanding of architectural and training paradigms. Actively looking for opportunities as a ML/DL researcher or Data Scientist.

EDUCATION

University of Bonn　　　　　　　　　　　　　　　　　　　　　　　　　Bonn, Germany
Master of Science, Computer Science (Intelligent Systems)　　　　　　　　　　2017–2020
– *Thesis: Fully-3D Deep CNNs for Segmentation of Neuroanatomy*

Jadavpur University　　　　　　　　　　　　　　　　　　　　　　　　Kolkata, India
Master of Engineering, Software Engineering　　　　　　　　　　　　　　　2013–2015
– *Thesis: Supervised-Layerwise Training of Deep CNNs for Classification*

WORK EXPERIENCE　　　　　　　　　　　　　　　　　　　　　　☐LI-LOGO.PNG

German Center for Neurodegenerative Diseases (DZNE)　　　　　　　Bonn, Germany
Research Assistant, Image Analysis Group　　　　　　　　　　　　　　　　2018–2020

- Led the development of optimized 3D CNN blocks for full-volume neuroanatomical segmentation through efficient reparameterization

- Developed architectures for optimized memory-usage during training to promote model reusability in semantic segmentation in medical imaging

Jadavpur University　　　　　　　　　　　　　　　　　　　　　　　　Kolkata, India
Junior Research Fellow, Dept. of Computer Science & Engg.　　　　　　　　　2016–2017

- Applied recurrent neural networks and classical time series analysis algorithms to the problem of appliance energy usage prediction

- Implemented distributed gradient descent algorithms by developing a PySpark wrapper for a Keras and Flask framework

Indian Statistical Institute　　　　　　　　　　　　　　　　　　　　Kolkata, India
Project Trainee (Intern), Computer Vision and Pattern Recognition Unit　　　　2015–2016

- Developed supervised-layerwise deep CNNs for document classification on limited data

SKILLS

Technical Proficiency
- **Proficient:** Python, NumPy, Scikit-Learn, PyTorch, Git, LaTeX, Matplotlib
- **Familiar:** Linux (Usage and Shell Scripting), C, SciPy, R, SQL, Apache Spark, Matlab, Keras, Pandas, Docker

Relevant Courses
- Machine Learning, Technical Neural Networks, Data Science & Big Data, Distributed Big Data Analytics, Data Analytics and Visualization, Knowledge Graph Analysis, Deep Learning for Visual Recognition, Pattern Recognition, Deep Learning on GPUs, Advanced Deep Learning for Graphics

PUBLICATIONS (SELECTED)　　　　　　　　　　　　　　　　　☐SCHOLAR_LOGO_

- A. Das, **S. Roy**, U. Bhattacharya, S.K. Parui, "Document Image Classification with Intra-Domain Transfer Learning and Stacked Generalization of Deep Convolutional Neural Networks," 24th *International Conference on Pattern Recognition (ICPR)*, Beijing, China, 2018.

- **S. Roy**, N. Das, M. Kundu, M. Nasipuri, "Handwritten Isolated Bangla Compound Character Recognition: A new benchmark using a novel deep learning approach," *Pattern Recognition Letters, Elsevier*, Vol. 90, pp.15-21, 2017.

- **S. Roy**, A. Das, U. Bhattacharya, "Generalized Stacking of Layerwise-trained Deep Convolutional Neural Networks for Document Image Classification," 23rd *International Conference on Pattern Recognition (ICPR)*, Cancun, Mexico, 2016.

Projects ᵒGitHub_Logo

- Implementation of `Autoencoders, GANs` (Advanced Deep Learning course)
- `Deep CNNs` for Humanoid Robot Part Detection and Localization (Vision Systems lab)
- Implementation of `Logistic Regression, MLPs, CNNs, VGGNets, ResNets, LSTMs, GRUs, Transfer Learning` based Nets (Vision Systems lab)
- Scalable Evolutionary Algorithm for Association Rule Mining from Ontological Knowledge Bases using Apache Spark (Distributed Big Data lab)
- `Deep Convolutional GAN` retraining on ImageNet-1k (Deep Learning lecture assignment)
- Implementation of `Decision Trees and Rules, NN Classifiers, Ridge Regression` (Machine Learning course)
- Deep `CNN-LSTM` Networks for Electric Load and Wind Power Forecasting
- Supervised Layerwise training of `Deep CNNs` for Character and Document Recognition

Professional Service

- Reviewer (Selected): ICPR (2018), *Language Resources and Evaluation*, Springer (2018), *Sadhana, Springer* (2019, 2020), *IEEE Access* (2019), *IET Information Security* (2020)

Miscelleaneous

- GATE Scholarship (2013–2015) for Postgraduate Studies, Govt. of India.
- Erasmus Mundus FUSION Scholarship for PhD mobility between Jadavpur University, India and University of Evora, Portugal (Did not accept offer)