Surajit Dasgupta

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Education

2015–2017 **Master of Engineering**, *Jadavpur University*, Kolkata.
Computer Science and Engineering, *GPA – 7.57/10* (till 2nd semester)

2010–2014 **Bachelor of Technology**, *Govt. College of Engineering and Ceramic Technology*, Kolkata.
Computer Science and Engineering, *GPA – 8.04/10*

2010 **AISSCE, 12th**, *DAV Public School*, Rupnarayanpur, West Bengal.
Obtained 83.4% in All India Senior School Certificate Examination conducted by CBSE.

2008 **AISSE, 10th**, *DAV Public School*, Rupnarayanpur, West Bengal.
Obtained 82.6% in All India Secondary School Examination conducted by CBSE.

Research Interests

Deep Learning, Machine Learning, Natural Language Processing, Computer Vision.

Masters Thesis

Title **Deep Visual Question Answering** (Ongoing)

Supervisors **Dr. Sivaji Bandyopadhyay** & **Dr. Sudip K. Naskar**

Description This thesis aims to bridge the gap between natural language processing and computer vision. In this work, a system is designed that accepts an image and a natural language query and provides a natural language answer. Deep learning architectures like Convolutional Neural Networks, Long Short Term Memory and Dynamic Memory Networks with attention are being used to extract image features, process the question and generate the relevant answer. Visual Question Answering (VQA) dataset is currently being used to train and evaluate the models.

Projects

Ongoing **Recognizing Textual Entailment with Deep Neural Networks**,
Research project under Dr. Sudip K. Naskar, Jadavpur University.
- Implemented Bidirectional Long Short Term Memory (LSTM) with attention mechanism, Tree based LSTM structures to recognize textual entailment.
- Stanford Natural Language Inference (SNLI) dataset is being used for training and evaluation.
- Implementation is done using TensorFlow.

Aug. 2016 **Information Extraction from Microblogs Posted during Disasters**,
Forum for Information Retrieval Evaluation (FIRE) 2016, Microblog Track task.
The task aimed at extracting tweets relevant to the given topics and ranking them.
- Expanded topic keywords using WordNet and NodeBox.
- Used GloVe word embeddings to build tweet vectors and topic vectors, calculated cosine similarity between them and ranked the tweets.
- **Achieved 2nd position** with highest Precision@20 in Microblog Track, Semi Automatic run type.
- Working note – http://ceur-ws.org/Vol-1737/T2-4.pdf

Feb. 2016 **Detection of Multiword Expressions using Word Embeddings**,
Research project under Dr. Sudip K. Naskar, Jadavpur University.
- Implemented an approach to detect non-compositionality of bigram multiword expressions based on the semantic differences between the MWE and its individual constituents.
- Used vector space word embeddings to detect and extract the multiword expressions.

Dec. 2015 **Intelligent Detection of Influential Nodes in Networks**,
Course project under Dr. Nandini Mukherjee, Jadavpur University.
- A survey paper on techniques used to identify influential nodes in complex networks.
- Paper accepted in IEEE International Conference in Electrical, Electronics and Optimization Techniques 2016, Chennai, India.

Apr. 2014 **Image Segmentation using Clustering Algorithm**,
B.Tech. project under Prof. Partha Ghosh, Govt. College of Engineering & Ceramic Tech..
- Used unsupervised learning – K Means and Fuzzy C Means clustering algorithms on image data and the segmented output image was analyzed.
- Implementation was done using MATLAB.

Jul. 2012 **Inventory Management System**,
Summer training, IBM Advanced Career Education, Kolkata.
- A system was developed that kept track of the inventory stock items and requirements, handled billing and generated report for inventory items.
- Oracle 10g RDBMS was used to develop the Inventory Management System.

Technical Skills

Languages	C, C++, Python, Java, Lua
Libraries	TensorFlow, Keras, Torch, NLTK, Scikit-Learn, SciPy
Others	Git, LaTeX
Platforms	GNU/Linux, Windows

Relevant Coursework

Jadavpur University

AI/ML	Machine Learning, Artificial Intelligence, Natural Language Processing, Text Analytics, Pattern Recognition and Image Processing.
Algorithms	Advanced Algorithms.

Govt. College of Engineering and Ceramic Technology

Mathematics	Mathematics - I, II, III, IV, Discrete Mathematics.
Algorithms	Design and Analysis of Algorithms, Data Structures, Introduction to Computing.

Massive Open Online Courses

Deep Learning	**Google**
Machine Learning	**Stanford University**
Natural Language Processing	**Stanford University**
Natural Language Understanding	**Stanford University**
Neural Networks for Machine Learning	**University of Toronto**
Deep Learning for Natural Language Processing	**Stanford University**
Convolutional Neural Networks for Visual Recognition	**Stanford University**

Teaching Experience

2016 Teaching Assistant for CS414E: Computer and Network Security, Jadavpur University.

Scholarships

2015–2017 GATE Fellowship, Ministry of Human Resource Development, Govt. of India.

Achievements

2014 Secured 98.32 percentile in Graduate Aptitude Test in Engineering (GATE) CS-IT.

2014 Secured 11^{th} rank in Catalysts Coding Contest, out of 49 participating teams, held at BITS Mesra, Kolkata campus.

2013 Selected among the Top 20 finalists in "Designers of Tomorrow", national level graphic designing contest organized by Adobe India.

2007 Secured 64^{th} state rank in the 10^{th} National Science Olympiad.

Positions of Responsibility

2016 Evaluator: *CLIA Sandhan*, Govt. of India project on Indian Languages, Jadavpur University.

2013 Editor: *BrainSpark*, Student magazine, Govt. College of Engineering & Ceramic Technology.

2013 Organizing Secretary: *Techtroniks*, Technical festival, Govt. College of Engineering & Ceramic Technology.

2013 Head Designer: *Jagriti*, Annual festival, Govt. College of Engineering & Ceramic Technology.

2013 Coordinator: *Decode-C*, C coding competition, Govt. College of Engineering & Ceramic Technology.

References

Dr. Sivaji Bandyopadhyay

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Dr. Sudip K. Naskar

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