Amitrajit Sarkar

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PERSONAL DETAILS

Date of Birth | 10 May 1994
Address | A-16, Purba Diganta, Santoshpur, Kolkata - 700 075, India
Contact | +91 99035 96572

AREAS OF INTEREST

Machine Learning
Deep Learning
Natural Language Processing
Natural Language Understanding
Artificial Intelligence
Robotics

EDUCATION

JADAVPUR UNIVERSITY
BE in Computer Science and Engineering
Expected May 2017 | Kolkata, India
CGPA: 9.0 / 10.0 | Class Rank: 3

GARDEN HIGH SCHOOL
Graduated May 2013 | Kolkata, India
ICSE, 2011: 97.6%: School Topper
ISC, 2013: 96.5%: School Topper

LINKS

PROFESSIONAL
Gmail:aaiijmrtt@gmail.com
Github:https://github.com/aaiijmrtt
Blog:https://aaiijmrtt.github.io

PERSONAL
https://twitter.com/aaiijmrtt
https://www.facebook.com/aaiijmrtt

SKILLS

PROGRAMMING
Over 5000 lines:
C • C++ • Java • BASH • Python
Familiar:
Android • VisualC# • Assembly • Lua
HTML • CSS • Javascript • Scala
Octave • VisualBasic • LaTeX • MySQL

RESEARCH

DEEP LEARNING SPEECH ANNOTATION | Undergraduate Researcher
August 2016 - Present | Jadavpur University, Kolkata
Developing **Deep Learning** based **Speech Annotation** Framework at the Jadavpur University Natural Language Processing Laboratory with **Professor Sivaji Bandyopadhyay**.

NEURAL CONVERSATIONAL AGENTS | Summer Intern Researcher
May 2016 - July 2016 | Indian Institute of Science, Bangalore
Developed **Attention Based Sequence to Sequence Frame Semantic Conversation Models** at the Machine and Language Learning Laboratory with **Dr. Partha Pratim Talukdar**.

SPEECH RECOGNITION AND SYNTHESIS | Undergraduate Researcher
January 2016 - May 2016 | Jadavpur University, Kolkata
Developed a **Speech Recognition and Synthesis Tool** at the Jadavpur University Natural Language Processing Laboratory with **Professor Sivaji Bandyopadhyay**.

CROSSLINGUAL DEPENDENCY PARSING | Summer Intern Researcher
May 2015 – July 2015 | Indian Institute of Technology, Kharagpur
Developed a **CrossLingual Shift Reduce Dependency Parser** based on **Translational Transformations** of **Word Vector Models** with **Professor Sudeshna Sarkar**.

AUTONOMOUS MULTIROBOTIC PLATFORM | Undergraduate Researcher
May 2014 – December 2015 | Jadavpur University, Kolkata
Developed an **Autonomous MultiRobotic Platform** capable of real-time coordination in solving problems of **localization, dynamic path planning, Simultaneous Localization and Mapping**, etc. with **Professor Chandan Mazumdar**.

OTHER PROJECTS

TRAFFIC COUNTER
Background Subtraction in OpenCV

QUADCOPTER
Disaster Management System

RELATIONAL
Database Management syntactically based on Relational Algebra

METAPROGRAMMING
Functional Metaprogramming Wrapper for C++

LINT
Arbitrary Precision Arithmetic in C

XBEE NETWORK
For MultiRobotic Intercommunication

PETREL PLUGIN
C# Plugin for Schlumberger's Petrel Ocean Academic Competition

COMPETITIVE CODING
ProjectEuler, CodeChef, HackerRank TopCoder, Kaggle

OPEN SOURCING
Torch, PyParsing

EXPERIENCE

NET | Neural Network Library | Python
June 2015 - December 2015 | Indian Institute of Technology, Kharagpur
Developed an extensive Neural Network Library from scratch.
- Layers
- Cost Functions
- Transfer Functions
- Radial Basis Functions
- Long Short Term Memory
- Standard Architectures
- Unsupervised Pretraining
- Training Optimization
- Optimization Benchmarking
- Hyperparameter Optimization
- Distributed Programming Support, GPU Optimization

JARVIS | Intelligent Dialogue Agent | Python
September 2014 - December 2015 | Personal Project
Developed an Artificially Intelligent Natural Language Understanding Dialogue Agent.

- Speech To Text
- Dependency Parsing
- Frame Semantic Role Labeling
- WordNet similarity mapping
- Knowledge Graph
- Database Management
- Dependency Graph Alignment
- Integer Linear Programming
- Conversation Space Modeling
- Natural Language Generation
- Text To Speech
- **Uses**: CMU Sphinx, Stanford Parser, PuLP, NLTK, NetworkX, MatplotLib, Jpype, MySQLdb, SimpleNLG, ESpeak

DISTRIBUTED NEURAL NETWORK | Stock Market Analysis Tool | Python
March 2015 | Jadavpur University, Kolkata
Developed a Distributed Neural Network on Apache Hadoop

- Neural Networks
- Genetic Algorithms
- Parallel Processing
- Hadoop's Map Reduce

CHESS ENGINE | Chess Engine | C++
October 2013 - February 2014 | Personal Project
Developed a Chess Engine from scratch.

- Bitboards, 32bit Move Encoding
- Static Exchange Evaluation on Horizon
- NegaMax Adversarial Search for Sum Zero Games
- Alpha Beta Pruning
- Principal Variation Search
- Transposition Tables

MASSIVE OPEN ONLINE COURSES

Course	Instructor(s)	Institution
Natural Language Processing	Michael Collins	**Columbia University**
Natural Language Processing	Dan Jurafsky, Christopher Manning	**Stanford University**
Natural Language Understanding	Bill MacCartney, Christopher Potts	**Stanford University**
Artificial Intelligence	Dan Klein	**University of California, Berkeley**
Artificial Intelligence for Robotics	Sebastian Thrun	**Georgia Institute of Technology**
Machine Learning	Andrew Ng	**Stanford University**
Machine Learning	Sebastian Thrun, Katie Malone	**Stanford University**
Machine Learning	Nando de Freitas	**University of Oxford**
Neural Networks for Machine Learning	Geoffrey Hinton	**University of Toronto**
Deep Learning for Natural Language Processing	Richard Socher	**Stanford University**
Deep Learning	Vincent Vanhoucke	**Google**

AWARDS

Year	Award	
2015	State Student and Youth Science Fair, 1st Prize	Hon'ble Education Minister Partha Chatterjee
2013	Tarak Nath Sen Memorial Award for English	Satikanta Guha Foundation
2011	Mamraj Agarwal Rashtriya Puraskar to Brilliant Students	Hon'ble Governor Shri M. K. Narayanan
2011	Sanjay Sen Memorial Prize for Creative Arts	Satikanta Guha Foundation
2010	Creative Writing Competition, 5th Prize	The Albert Barrow Memorial All India Inter-School Creative Writing Competition (Junior), CISCE

ACHIEVEMENTS

Year	Achievement	
2016	Event Coordinator, Hexed	CSFest, Computer Science Fest of Jadavpur University
2016	Event Coordinator, YodaSpeak	CSFest, Computer Science Fest of Jadavpur University
2016	Team Member, 1st Prize in Breaking Bug	Srijan, Techno-Management Fest of Jadavpur University
2016	Team Member, 2nd Prize in H42	Srijan, Techno-Management Fest of Jadavpur University
2016	Team Member, 2nd Prize in Algomaniac	Jadavpur University, Kolkata
2015	Team Member, 1st Prize in BuzzWord	Srijan, Techno-Management Fest of Jadavpur University
2015	Event Coordinator, Fast and Furious	Srijan, Techno-Management Fest of Jadavpur University
2015	Team Mentor, 4S-Bot, 3rd Prize in Robotics	Jontro Tontro, Jadavpur University
2015	Team Member, Sherlock, 3rd Prize in BugSmash	Institute of Engineering and Management, Kolkata, ACM certified
2014	Original Story, Screenplay, Musical Score	'The Hat', a short film
2014	Event Coordinator, Fast and Furious	Srijan, Techno-Management Fest of Jadavpur University
2013	Team Member, Flipper, 1st Prize in Robotics	Jontro Tontro, Jadavpur University
2011	Creative Writing Competition, 2nd Prize	USIEF, International Education Week, American Center, Kolkata
2010	'Sands of Time', Short Story published in 'Journeys'	The British Council, Kolkata
2010	Passed Grade 5 (Piano) with Merit	The Associated Boards of the Royal Schools of Music (Kolkata Center)