

Parismita Das

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RESEARCH INTEREST

I am interested in application of Machine Learning, Pattern Recognition and Statistical Modelling in the field of Experimental Particle Physics.

EDUCATION

IIT GUWAHATI | BTECH IN ENGINEERING PHYSICS
Minor in Electronics Communication Engineering

2015-19 | Guwahati, India

CHANDERBALA MODI ACADEMY | SENIOR SECONDARY, CBSE BOARD, SCIENCE

2015 | Gujrat, India

RESEARCH

PION MASS RECONSTRUCTION

Bachelor's Thesis, IIT Guwahati

Aug 2017 – Present
Advisor: Prof. Bipul Bhuyan
[Project Page]

- Removal of the background neutral current containing pions, from the neutrino track.
- Detection of pion shower using mass peak method.
- Detector Simulation for electromagnetic calorimeter using Geant4
- Using Pattern Recognition and Machine Learning.

EXPERIENCE

MAXIMUM MARGIN INTERVAL TREES | THE R FOUNDATION FOR STATISTICAL COMPUTING

2018

Google Summer of Code Internship

[GSoc | Documentation | Github]

- Max margin interval trees (MMIT) is a new nonlinear model for interval censored data (Drouin et al., 2017).
- Created R Package To implement Regression Tree, Pruning and Random Forest along with Cross-Validation.
- A dynamic programming algorithm is used to find the optimal splitting in c++.

TRADE INFORMATION MANAGEMENT SYSTEM | CITICORP SERVICES

May 2018 – July 2018

Software Engineering Intern

- Modernized The Trade Application of Citi.
- Created Dashboard to help the makers and checkers for processing the trade related documentations using Angular and REST services.

DIGITAL NOTICE BOARD | DEPARTMENT OF PHYSICS, IIT GUWAHATI

Aug 2017 – Nov 2017

Software Engineering

[Github]

- Smart Multi-Screen Display Notice Board, Android TV application.
- Supports uploading of image, video and text on Apache server.
- Pipelining with MySQL database and Apache server using PHP

PROJECTS

RAMAN, THE HUMANIOD | 4I LABS, IIT GUWAHATI

May 2017 – Present

[Github | Website]

- The Vision part of the bot consist of:
- Object Detection, Recognition, Tracking and 3D segmentation.
- Face Recognition, Tracking and Emotion Analysis.
- Human Detection, Pose estimation.
- Developing Cognitive Skills of the Bot.

PIXIE | THE AUTONOMOUS DRIVING BOT

Jan 2017

[Github | Website]

- Colour and Shape detection by overhead camera Using Opencv
- A* Algorithm for Path planning
- Robot Operating System(ROS) to interface Arduino and Python Code

HDLSS ANALYSIS OF GENE TO DETECT CANCER

Aug 2016 – Sept 2016

Coursework Project: Advance Machine Learning, IIT Guwahati

- Cancer state detection by High Dimension Low Sampling
- Classified Cancer non Cancer cells by Reducing a 49K feature matrix to 100, using Glmnet.

TEXT GENERATION

Sept 2016 – Nov 2016

Coursework Project: Advance Machine Learning, IIT Guwahati

- Text generation using LSTMs, Stochastic Learning by using SGD and Dropout

JSPARSER

May 2016

- Javascript Compiler using Scala and Lihaioyi's FastParse

[Github]

SKILLS

PROGRAMMING LANGUAGES C++, C, Python, Scala*, Haskell*, R, Android, Java*

DATABASE MANAGEMENT MySQL, Django

SOFTWARE PACKAGES OpenCV, Theano, Keras, Tensorflow, Geant4

OPERATING SYSTEM Linux

MIDDLE-WARE Robot Operating System (ROS)

WEB TECHNOLOGIES HTML, CSS, JavaScript, Ajax, JQuery, PHP, Angular

HARDWARE Arduino, Bolt Platform

* Elementary proficiency

OPEN SOURCE

THE R FOUNDATION FOR STATISTICAL COMPUTING | INTERVAL REGRESSION PACKAGE MMIT

[Github]

- Created R package for package MMIT, including documentation, benchmarking.
- Solved Issues in Python code.

CLOUDCV | EVALAI, A PLATFORM FOR HOSTING AI CHALLENGES

[Github]

- Created Models and Views for Front End
- Added Test cases.
- Solved Issues, bug fixes.

COURSEWORK

COMPUTER SCIENCE Advanced Machine learning (Deep Learning), Pattern Recognition and Machine Learning, Game Theory, Introduction to Computing

MATHEMATICS Linear Algebra and Real Analysis, Differential Equations, Complex Analysis, Partial Differential Equations, Discrete Maths

ELECTRONICS Signals and Systems, Digital Circuits, RTL and Microprocessors, Digital Signal Processing, Communications*

PHYSICS Computational Physics, Quantum Information and Cryptography*, Cosmology*, Quantum Mechanics, Statistical Mechanics, Electromagnetic waves, Spectroscopy, Semiconductors

OTHERS Human Resource Management

* To be completed by November 2018

POSITION OF RESPONSIBILITY

HEAD OF COMPUTER VISION TEAM OF HUMANOID, ROBOTICS CLUB, IIT-GUWAHATI.

PROJECT MANAGER AT ROBOTICS CLUB, IIT-GUWAHATI.