ASHISH KUMAR GAURAV | 16MA20013

MATHEMATICS & COMPUTING (M.Sc. 5Y)

EDUCATION

Year	Degree/Exam	Institute	CGPA/Marks
2021	M.SC(5YR)	IIT Kharagpur	8.82 / 10
2015	Intermediate(AISSCE)	Sree Ayyappa Public School, Bokaro	94.8%
2013	Matriculation(CISCE)	Saint Francis School, Deoghar	92.16%

INTERNSHIPS

Awl Inc, Japan (May 2019 - July 2019)

•Developed a semi-supervised learning based model for classification.
•Created an algorithm to select images for training using Autoencoders and Clustering, which enhanced the performance of semi-supervised learning.
•Developed an user-interactive visualisation tool for visualising latent space of images using Autoencoders, t-SNEand scatter plot.

PROJECTS

Google Summer of Code 2018 | Sympy

•Sympy is a python library for symbolic mathematics. Improved it by adding new features and fixing bugs.
•Structured and implemented rule based integration in python as a sub-module of sympy.
•Rule based integration consists of about 10,000 transformation rules written originally for mathematica.
•Wrote parsers which automatically generate rules and test-cases in python from mathematica rules.
•Implemented a large set of mathematical utility functions in python which are used by the rules.
(Github id: ashishkg0022)

Kharagpur RoboSoccer Students' Group (KRSSG)

•Contributed to the development of software architecture for controlling autonomous soccer playing omni-directional bots.
•Composed various skills, tactics and plays on ROS (Robot Operating System) for intelligent game play.
•Implemented variations of RRT in path planning.
•Developed a Simulator GUI in PyQt which shows current state of the game. It also enhances user control on the bots.
•Implemented a fuzzy logic based multi agent passing.

Prediction of Accident Severity of a Region

•Made a prediction model in keras considering various factors like road conditions, weather and light conditions, time, day of week and few other factors.
•Created a flask app for demonstration, which marks regions on map of a city based on accident severity.

PUBLICATIONS

Potential and Sampling based RRT star for Real-Time Motion Planning accounting for momentum in cost function

At the 25th International Conference on Neural Information Processing (ICONIP 2018), Siem Reap, Cambodia.

COMPETITION/CONFERENCE

•Part of the team that represented KRSSG, India at the 21st Robot World Cup(Robocup) held in Nagoya, Japan in July, 2017.

SKILLS AND EXPERTISE

Languages: C, C++, Python
Packages and Tools: Keras, OpenCV, Git, QT, ROS, Wolfram Mathematica.

COURSEWORK INFORMATION

Relevant Courses Undertaken: Data Structures, Analysis of Algorithms, Soft Computing Tools, Object Oriented Systems, Probability and Statistics, Linear Algebra,Modern Algebra.

POSITIONS OF RESPONSIBILITY

Team Head, KRSSG

•Contributed as the Software Team Head of the Kharagpur RoboSoccer Students' Group for the academic year 2018-2019.

Organising Head, Code-O-Soccer

•Organised a national level Artificial Intelligence strategy coding event,held at Kshitij, 2018 and 2019.

Core Team Member, Kharagpur Open Source Society

•Conducted various open source development workshops which includes Git, GitHub, Python and Linux workshops.
•Mentored the Kharagpur Winter of Code 2017 programme.