Sourish Ghosh

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Education

Indian Institute of Technology, Kharagpur	July, 2014 - April, 2019 (*expected*)	**Integrated M.Sc.** Junior Undergraduate *Department*: Mathematics *Major*: Mathematics and Computing *CGPA*: 8.72/10
Garden High School, Kolkata	April, 2012 - February, 2014	**Indian School Certificate Board** *Aggregate*: 94%

Publications

A Fuzzy Logic System to Analyze a Student's Lifestyle. Sourish Ghosh et al. `arXiv:1610.03957`

Research Experience

University of Massachusetts, Amherst — May, 2016 - August, 2016
Summer Intern, Autonomous Mobile Robotics Lab
Topic: local obstacle avoidance of outdoor mobile robots using stereo RGB cameras (*paper in progress*)
Research areas: mobile robotics, stereo vision, epipolar geometry
Advisor: Dr. Joydeep Biswas
Repository: `https://github.com/sourishg/jackal-navigation`

Kharagpur RoboSoccer Students' Group, IIT Kharagpur — February, 2015 - April, 2016
Software Team Member
Implemented motion planning algorithms for RoboCup Small Sized League and MiroSot, FIRA. Bronze winning team member at MiroSot, FIRA 2015.
Research areas: multi-agent robot systems, robot soccer, motion planning
Advisor: Dr. Jayanta Mukhopadhyay

Responsibilities

Technology Robotix Society, IIT Kharagpur — February, 2016 - *present*
Head
I am responsible for designing a computer vision event to be held at *Kshitij 2017*, Asia's largest techno-management fest. I help conduct technical workshops across India to spread the culture of robotics. Also I organize weekly lectures on manual and autonomous robotics for over 300 students round the year along with workshops and hackathons. I lead a three-tier team to successful planning and execution of all these events.

IEEE Robotics Winter Workshop, IIT Kharagpur December, 2015
Image Processing Mentor
I conducted a week-long workshop for first and second year undergraduates at IIT Kharagpur. I taught basic image processing using OpenCV and C++, and micro-controller programming using an Arduino UNO board. As a final project of the workshop I helped the students build a simple object tracking differential drive robot.

Projects

Autonomous Campus Bot
Currently working on an autonomous outdoor vehicle capable of moving autonomously using vision and GPS.

RRT Simulator
Developed an interactive GUI interface to simulate a path generated by RRTs avoiding obstacles using C++ and Qt.
Repository: `https://github.com/sourishg/rrt-simulator`

Stereo Camera Calibration Tools
Developed some tools for the calibration of stereo cameras using the checker-board method using C++ and OpenCV for both pinhole model and fisheye model lenses.
Pinhole Model: `https://github.com/sourishg/stereo-calibration`
Fisheye Model: `https://github.com/sourishg/fisheye-stereo-calibration`

Soft Computing Term Project
Developed an Android application that determines the lifestyle of a person. A fuzzy logic based approach was used to generate an analysis of how a person spends his/her day based on his/her phone's GPS data and how much time he/she spent at a particular location. Peer reviewed to be the best term project for Spring 2016.
Advisor: Dr. Sudhir Kumar Barai
Repository: `https://github.com/nishnik/YOLO`

code.fun.do, Mircrosoft Hackathon
Developed a mobile game for Windows Phone using C# and XAML. The idea of the game is to stop incoming missiles by tapping on them, before they reach their target.
Repository: `https://github.com/sourishg/saving-private-ryan`

Awards and Achievements

MiroSot, FIRA July, 2015
MiroSot is an international five-a-side robot soccer tournament. I was a part of the bronze-winning team of IIT Kharagpur.

Best Term Project, Soft Computing Course Spring, 2016
Designed a mobile application that tracks the daily lifestyle of a person. Peer reviewed as the best project.

INSPIRE Scholarship Recipient July, 2014 - *present*
A prestigious scholarship awarded by the Government of India to the top 0.07% students who appeared for the JEE Advanced examination in India, and pursuing a career in Science.

SudoCode, Kshitij 2015 January, 2015
Participated in an online coding competition at *Kshitij 2015*, Asia's largest techno-management fest. Awarded the best fresher at IIT Kharagpur.

Best Fresher, HackerEearth Freshers' Challenge, IIT Kharagpur October, 2014
Finished first amongst all first years in an ACM-ICPC style coding contest organised by HackerEarth.

Inter IIT Sports Meet December, 2014
Represented IIT Kharagpur in table tennis and secured the bronze medal.

Table Tennis State Championship, West Bengal November, 2010
Member of South 24 PGS District silver winning table tennis team.

Coursework

IIT Kharagpur

Completed
Partial Differential Equations
Transform Calculus
Probability and Statistics
Discrete Mathematics
Design and Analysis of Algorithms
Programming and Data Structures
Soft Computing
Basic Electronics

Ongoing
Computer Organization and Architecture
Object Oriented Systems Design
Linear Algebra
Real Analysis
Mathematical Methods

Additional Courses

Completed
Machine Learning (Coursera)
Introduction to Computer Vision (Udacity)
Artificial Intelligence for Robotics (Udacity)

Ongoing
Deep Learning (Udacity)
Probabilistic Graphical Models (Coursera)

Skills

Programming
C, C++, Java, Python, LaTeX

Libraries and Tools
OpenCV, ROS, GNU Octave, AndroidSDK

Kharagpur, October 20, 2016