

# SOURISH GHOSH

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## EDUCATION

Indian Institute of Technology,  
Kharagpur

July, 2014 - April, 2019  
(*expected*)

**Integrated M.Sc.**  
*Department:* Mathematics  
*Major:* Mathematics and Computing  
*CGPA:* 8.70/10

Garden High School, Kolkata

April, 2012 - February, 2014

**Indian School Certificate Board**  
*Aggregate:* 94%

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## PUBLICATIONS

### A Fuzzy Logic System to Analyze a Student's Lifestyle.

by Sourish Ghosh et al.

In *2017 9th International Conference on Advanced Computational Intelligence, ICACI 2017*, (Doha, Qatar), Feb. 2017. To Appear.

arXiv:1610.03957 (*pre-print*)

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## 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](#)

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## 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.

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## 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, Microsoft 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>

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## 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, HackerEarth 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.

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## RELEVANT COURSEWORK

### IIT Kharagpur

**Completed**

Linear Algebra  
Partial Differential Equations  
Transform Calculus  
Probability and Statistics  
Discrete Mathematics  
Design and Analysis of Algorithms  
Soft Computing  
Basic Electronics  
Computer Organization and Architecture  
Object Oriented Systems Design

**Ongoing**

Operation Research  
Modern Algebra  
Measure Theory and Integration  
Switching and Finite Automata

### Additional Courses

**Completed**

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

**Ongoing**

Deep Learning (Udacity)  
Probabilistic Graphical Models (Coursera)

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## SKILLS

**Programming**

C, C++, Java, Python, L<sup>A</sup>T<sub>E</sub>X

**Libraries and Tools**

OpenCV, ROS, GNU Octave, AndroidSDK

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Kharagpur, January 4, 2017