Debasmita Ghose

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Education

- **University of Massachusetts, Amherst, USA** **CGPA: 3.88/4.0**
  Master of Science - Computer Science *2017–2019*
  Relevant Courses: Robotics, Computer Vision, Intelligent Visual Computing, Machine Learning, Modern Computer Architecture, Mobile and Ubiquitous Computing, Reinforcement Learning
- **Manipal Institute of Technology, Manipal, India** **CGPA: 9.07/10.0**
  Bachelor of Technology - Electronics and Communication Engineering *2013–2017*
  Relevant Courses: Advanced Embedded Systems Design, Control Systems, Building Automation Systems

Experience

- **Siemens** **Munich, Germany**
  Robotics Research Intern *June 2018–Present*
  Using Robot Operating System (ROS) to implement 'Follow Me' and 'Pick and Place' tasks on the Siemens humanoid robot.
- **Nanyang Technological University** **Singapore**
  Research Assistant *January 2017 - June 2017*
  Implemented various machine learning techniques for developing a system that can detect the mode of transportation used by a person using time sequenced location data retrieved from his cellphone with an accuracy of about 90%
- **Technical University of Dresden** **Dresden, Germany**
  Summer Research Intern *May 2016 - August 2016*
  Built an octo-copter which was capable of stable flying and taking off and landing autonomously.

Achievements

- **DAAD RISE Professional Scholarship:** Received the RISE Professional Scholarship 2018 from the German Academic Exchange Service for a research internship with Siemens AG, Munich,Germany
- **Best Outgoing Student:** Conferred with the Chaya Devi Award for the Best Outgoing Student of the 2013-2017 batch of 240 students, by the Department of Electronics and Communication Engineering, Manipal Institute of Technology, Manipal
- **Winner:** INK Makers – Make-a-Thon, 2016 an innovation challenge conducted by INK Talks for building a Braille Reader among 20 teams
- **Best Research Poster – Technical** at Indo German Convention of Lindau Alumni, Kasturba Medical College, Manipal among 40 teams
- **Theme Winner:** Internet of Things and Intelligent Systems at Intel India Embedded Challenge – 2014 for building Amphibious Rescue and Surveillance Robot – a Modern Hovercraft among 2000 teams

Publications

- **Cost Effective Road Accident Prevention System**, *Dr. Mohan Kumar J, Rishabh Mahajan, Deeksha Prabhu, Debasmita Ghose*, IEEE International Conference for Contemporary Computing and Informatics, Noida, India, 2016
- **Safety Mechanism in Treadmills using a Heart Rate Sensor**, *Debasmita Ghose, Vandana Prasad, Ankita Singh*, International Research Journal of Engineering and Technology, Volume 3, Issue 5, May 2016
- **A Modern Approach to Energy Generation and Conservation using Rain Water**,*Rishabh Mahajan, Debasmita Ghose, Deeksha Prabhu*, 8th National Conference on Advances in Energy Conversion Technologies, 2016 conducted by Manipal Institute of Technology, India (presentation)
- **Planning a Smart City in an Indian Context: A Case Study of Patna U.A., Bihar**, *Debasmita Ghose, Dr. Debjani Sarkar Ghose*, National Seminar on Development and Management of Urban Infrastructure in India: Growth, Constraints and Prospects, 2016 at Patna Women's College, Patna, India

Projects

Graduate

- **Telekinesis: Multi-User Multi-Class Classification of EEG Data**
  - Generalizing the use of EEG data for various multi user multi class classification tasks using ***Variational Autoencoders*** and ***Recurrent Neural Networks***.
  - Using existing datasets to train the models and testing on data collected using the Emotiv EPOC+ headset on subjects and achieved an initial accuracy of about 75%
- **A Comparative Study of Architectures for 2D Image Segmentation**
  - Performed a comparative study of various Deep Learning models- ***FCN, U-Net, Dilated Convolutions, Dense Nets*** by modifying them for Image Segmentation in Keras Framework on PASCAL VOC dataset
  - Used transfer learning techniques to achieve an improvement in the performance of U-Net
- **Automatic Sports Video Highlight Generation**
  - Implemented a ***3D Convolutional Neural Network*** using the Keras/TensorFlow framework to analyze the excitement levels of audience watching a game to classify parts of the video into "Highlight" and "Standard Gameplay" with an accuracy of about 70%

Under-Graduate

- **Road Accident Prevention System**
  - Designed a system to detect driver drowsiness, check if the driver is under the influence of alcohol, if he has fastened the seat belt and if he is tailgating someone or being tailgated by someone.
  - Developed a system to alert the driver by means of an audio stimulus, if found to violate traffic rules and if needed, send the details of the car to the nearest police station for further action.
  - Our team of 3 was selected among the top 10 teams of Atmel Embedded Design Challenge 2016 for this project.
- **Amphibious Rescue and Surveillance Hovercraft**
  - Designed and built a vehicle capable of traversing autonomously to inaccessible locations and perform live environmental monitoring.
  - Developed a system to transmit real time video feed from this vehicle to a ground station to assist the rescue teams
  - This project was awarded as the best project at the Intel India Embedded Challenge, 2014 in the category Internet of Things and Intelligent Systems.
- **Cargo Aligning Robot (using Firebird V Robotics Research Platform)**
  - Programmed the FireBird V Research Platform to act as a cargo aligning robot, which could traverse a grid of points in a path autonomously avoiding obstacles.
  - Designed and built a robotic arm to pick up, turn and drop cargo blocks.
  - This project was a part of the e-Yantra National Robotics Competition conducted by Indian Institute of Technology, Bombay.