

Tata Institute of Fundamental Research

Visiting Students Research Programme (2017)

Personal Information

Registration number OVSRP2017-STCS-055767

Name Mr. Rishav Agarwal

Gender male

Date Of Birth 15/09/1995

Place Of Birth Rourkela

Nationality Indian



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Educational Information

I am studying for Master's degree/Bachelor's degree in Engg Or Tech.

Computer Science

Engineering branch Computer Science and Engineering

Other Degree **Other Subject**

I would like to be considered for the following department

Areas of study in order of preference

Department Choice : SCHOOL OF TECHNOLOGY & COMPUTER SCIENCE

Area of Research 1 : Speech and Language Processing

Area of Research 2 : Algorithms and Complexity

The Write-up

With the advancement of Processing Technologies and High Speed Computation , the application of Machine Learning has become quite prevalent in the real world. My work focus has been on developing and researching on a project called "DOOT" which is a communication model for the speech impaired individuals and I intend to keep working on this field. Speech impaired Individuals in India are deprived of education and job opportunities due to the communication gap. This is the specific problem I would like to work on. My previous experience in the above project suggests Gesture Recognition is a viable method of solving this problem. I with my team have developed various tools to ease the method of data collection , feature selection and also build a live predictor as a prototype for the final product. I have experimented with the performance of many classifiers including Support Vector Machines , K Nearest Neighbors , Decision Tree , Stochastic Gradient Descent etc. I have also implemented various boosting techniques to improve the overall precision of the Models. Currently me along with my team is trying to extend the project to dynamic gestures and employ language processing techniques to convert words into meaningful sentences that can be understood easily. The extension to dynamic gestures will involve the use of Hidden Markov Model and language processing concepts. My specific area of interest in Machine Learning is Language Processing and Supervised Classification. I believe with my research aptitude and experience with the "Gesture to Speech" project , I have knocked on the doors of a vast field of study. I would love to keep working in this field and contributing towards bridging the communication gap between a speech impaired individual and a normal human being. This fellowship will provide me extremely crucial guidance into this field and inspire me to continue my work. I look forward to getting this golden opportunity.

Selected Subject and Degree**Subject** COMPUTER & SYSTEMS SCIENCES**College/Institution** College of Engineering and Technology**Qualifications**

Degree	College	University	Year	Class	%Marks	Univ. Rank	Science/Engg. Subjects
SSC	Delhi Public School Rourkela	CBSE	2014	Distinction	95		Physics, Chemistry, Maths, Biology
HSC	Delhi Public School Rourkela	CBSE	2012	Distinction	90		Physics, Chemistry, Maths, Computer Science
BSC							
BTECH							
MSC							
MTECH							

When do you expect to complete M.Sc/B.Sc.(Engg)/B.E/B.Tech/M.E/M.Tech/Any other degree(specify)?

I expect to complete my **B-Tech** (final) degree in **05/2018**

Publications

Gesture to Speech using Leap Motion Controller: A communication model for Speech and Hearing Impaired. Asutosh Hota , Rishav Agarwal , Saisankar Gochhayat , Sandeep Mahapatra; IndiaCom-2017; IEEE International Conference on Computing for Sustainable Global Development, Accepted, 2017. Performance Analysis of Supervised Classification Models on Gesture recognition of Single Hand Alphabet of Indian Sign Language , Asutosh Hota, Rishav Agarwal, Saisankar Gochhayat, Sandeep Mahapatra, International Conference on Electrical, Electronics, Computer Science, Mathematics, Physical Education and Management (ICEECMPE), Accepted, 2017

Research experience

I have worked on Gesture to Speech Conversion specific to single handed model of Indian Sign Language. This project was seed funded by TEQIP-II. I have experimented and analyzed the performance of various classification algorithms on the static gesture dataset.

Additional academic information

First Prize in paper presentation in IEEE Student Colloquium in IIT Bhubaneswar, for Gesture to Speech using Leap Motion Controller First Prize in paper presentation in ISTE Silicon Institute of Technology chapter for "DOOT - Gesture to Speech Model" Second Prize in Code-N-Counter Hackathon, Organized by Nagarro, presented a web application for gamification of Education. Winner of Codebusters, a programming Contest of College of Engineering and Technology

How did you come to know about VSRP?

Friends & Others

Names and addresses of two Referees

Name : Dr. Rati Ranjan Dash
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