

# Sakshi Agarwal

## EDUCATION

Year	Qualification	Institute	Percentage/CGPA
2013---2017	Major : Electrical Engineering (Instrumentation) Minor : Computer Science	Indian Institute of Technology Kharagpur	8.20/10
2011--2012	Standard XII (C.B.S.E)	Sushila Birla Girls' School	94.8%
2009-2010	Standard X (C.B.S.E)	Sushila Birla Girls' School	9.6/10

## ACHIEVEMENTS

- Placed at **Conduent Labs India (former Xerox Research Centre India)** in Dec 2016.
- Qualified in the **Joint Entrance Examination (Advanced)**, 2013 with a percentile of **99.4%**.
- Secured an All India rank in the **Joint Entrance Examination (Main)** 2013 among the top 0.1%.
- Secured a rank of **648** in the **4<sup>th</sup> International Mathematics Olympiad** (organized by SOF India) 2011 with participants from around 100 countries.
- Secured a rank of **15** in the **T.I.M.E National Scholarship Test** 2008 with a wide participation from students in West Bengal.

## PUBLICATIONS

- Mohit Yadav, Sakshi Agarwal. Regularization and Learning an Ensemble of RNNs by Decorrelating Representations. *The AAAI-17 Workshop on Crowdsourcing, Deep Learning, and Artificial Intelligence Agents WS-17-07*.
- Sakshi Agarwal, Krishnaprasad Narayanan, Manjira Sinha, Rohit Gupta, Sharanya Eswaran, Tridib Mukherjee. Decision Support Framework for Big Data Analytics. *2018 IEEE World Congress on Services (SERVICES)*

## PATENTS

- \*Conduent ID No. 20180010 "Improving Subtle Hate Speech Classifier"
- \*Conduent ID No. 20180007 'METHOD AND SYSTEM FOR FORECASTING IN SPARSE DATA STREAMS VIA DENSE DATA STREAMS'
- \*Conduent ID No. 20170032 "Operational Analytics Engine for Police Business Intelligence Platform"
- \*TCS Innovation Labs Legasis Ref No. P2138-IN "Regularization and learning an ensemble of RNN by decorrelating representations"
- \*Patents under application.

## WORK EXPERIENCE | Conduent Labs, Bangalore, India

### Crime Analytics

[Aug'2017 - Present]

- Built a model to predict time of occurrence of crime events in a particular city based on their past events. A problem of accurate prediction in low crime cities was tackled. **Paper submitted at a conference.**
- Built a decision framework for a big data analytics platform and applied on this domain to get an optimum pipeline for the same. **Concise Paper accepted at IEEE Services 2018**
- Built a module to cluster cities of crime using K-Means algorithm via features extracted from time series data. Parallel version of K-Means algorithm was implemented in R Server on Microsoft Azure for a distributed platform implementation.
- A patent accepted to be filed on the existing crime analytics system which comprises of data handling, analytics and prediction.

### Hate Speech Analysis

[Mar'2018-Present]

- Built an attention based RNN model to detect hate-speech in online conversations of an article focusing on covert hate speech comments.
- Feature Engineered for the model included aggregating article titles, previous comments and external information from Wikipedia.
- Scraped some 200 Fox-News 'stupid' comments to enrich our dataset and ensure a balanced dataset.

## INTERSHIPS

### Regularizing Recurrent Neural Networks | TCS Innovation Lab, Gurgaon

[May'2016 - July'2016]

*Paper accepted at AAAI Workshop Crowdsourcing, Deep Learning and Artificial Intelligence Agents*

- Built a system, implementing a Recurrent Neural Network (LSTM) classifier, to be integrated with an existing online interaction system where customers entered their queries regarding hardware, software and e-mail related issues.
- Overfitting in RNNs was tackled and a significant performance increase (12% relatively) was recorded by implementing a proposed method of de-correlating hidden unit representations. Extensive experiments were conducted on multiple datasets.

## Wildlife Conservation Project | Duke University

[May'2015 - July'2015]

Guided by Prof. Mary Cummings, Associate Professor

- Integrated an existing commercial drone, an infrared camera, and a tablet controller, enabling an operator with no piloting skills the ability to track wildlife preserves at night.
- Incorporated real-time camera feed on the Tower App by integrating the drone thermal camera with the drone and the tower application.
- Simplified the user interface allowing the user access to simple take-off by clicking on one button and maneuver the drone's flight while monitoring wildlife at night.

## Negometer | Duke University

[May'2015 - July'2015]

Guided by Prof. Mary Cummings, Associate Professor

- Aimed to evaluate and display in 5.0 meter scale the fact of how negative a parent was being in front of his/her children in everyday life. I worked in formulating and putting together the pieces of this nascent project.
- Application of sentiment analysis through machine learning algorithms was the primary focus with collaborating the audio and the text attribute together.

## PROJECTS | IIT Kharagpur

### Biomedical Semantic Indexing

[Aug'2016 – Mar'2017]

Guided by Prof. Sudeshna Sarkar, IIT Kharagpur

- Built a model for Medical Subject Headings (MeSH) indexing for abstracts of biomedical articles.
- The semantics of the text was captured with LSTM, GRU, RNN, followed by classification. Experimentation was done with different architectures.

### Kharagpur Quadrotor Group

[Nov'2014 – Mar'2016]

- Worked on an autonomous quadrotor capable of participating in **IARC Mission 7 (International Aerial Robotics Competition)**. The problem involves making an autonomous quadrotor that can track 10 ground robots, avoid obstacles and direct the ground robots towards a goal by descending on them.

### Winter Workshops

[Dec 2014]

- Supervised the creation of an autonomous robot capable of following a 4\*4 grid and detect obstacles using a sonar and a robot capable of following simple hand gestures using an accelerometer and direct signals accordingly to another robot using UART communication.

Successful mentorship of **IEEE and Texas Instruments certified Winter Workshop 2014-15**, at IIT Kharagpur.

## SKILLS

**Programming languages:** C, C++, Python, Java (basics), Android, MATLAB    **Softwares:** ROS, SolidWorks, AVR  
**Big Data:** Spark, Hadoop    **Deep Learning:** Theano

## RELEVANT COURSES

**Computer Science:** Information Retrieval, Machine Learning, Intelligent Systems, High Performance Parallel Computing, Computer Architecture and Operating Systems, Algorithms + Lab, Programming and Data Structures + Lab

**Electrical Engineering:** Intelligent Control, Embedded Systems

**Mathematics:** Probability and Stochastic Processes, Statistics

## EXTRA-CURRICULAR ACTIVITIES

- Committee member of a conference, Grace Hopper Celebration India, Asia's largest women technologists gathering, contributing in reviewing submitted papers.
- Participated in the dance event in Spotlight, Conduent Talent Festival qualifying the regional first round.
- Sub-Head at University Robotix Club, IIT Kharagpur conducting workshops, hand-on sessions on robotics, apart from organizing an annual robotics competition.
- Director at IIT Kharagpur Model United Nations Conference 2014, supervising the Futuristic Continual Crisis Committee (FCCC) council, whose participants had to deal with multiple crisis across the world and prevent the world from descending into all-out war and chaos.
- Participated in the ROBOTIX event TREMORS conducted during Kshitij 2014 (Annual Techno-Management Fest of IIT Kharagpur).
- Member of the Inter-Hall Basketball team of Mother Teresa Hall of Residence.
- Participated in Open-IIT Badminton Tournament organized in IIT Kharagpur.
- An active member of the English Technology Dramatics Society having staged many plays in IIT Kharagpur.