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

- 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 **4th 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

Detecting Hate Speech [June'2018 - Present]

- Built an attention based RNN model to detect hate-speech in online comments of an article focusing on subtle hate speech comments. **Paper in Progress**
- Features for the model include article titles, previous comments and external knowledge representations from Wikipedia sources.
- Scraped some 200 Fox-News 'stupid' comments to enrich our existing dataset and ensure a balance in the dataset.

Crime Analytics [Aug'2017 - Present]

- Built a model to predict the time of occurrence of crime events in a particular city based on its past crime events. Later, focused on solving a problem of accurate prediction in low crime cities using the concept of metric learning to cluster cities and further, use representations of 'similar' cities to predict for low crime cities. **Paper submitted at SIAM International Conference on Data Mining**
- Built a module to cluster cities using K-Means algorithm via features extracted from their time series crime data. Parallel version of K-Means algorithm was implemented in R Server on Microsoft Azure for a distributed platform implementation.
- Worked on the existing crime analytics system which comprises of data handling, analytics and prediction.

Social Media Analytics Platform [Dec'2017 – Mar'2018]

- Built a decision framework for a big data analytics platform. Applied this decision framework for a social media analytics platform to get an optimum big data pipeline for users. **Concise Paper accepted at IEEE Services 2018**

INTERNSHIPS

Regularizing Recurrent Neural Networks | TCS Innovation Lab, Gurgaon [May'2016 - July'2016]

- 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.

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

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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 manoeuvre 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 deep learning based model for indexing Medical Subject Headings (MeSH) for abstracts of biomedical articles.
- The semantics of the text was captured with different architectures of RNN (LSTM, GRU) followed by classification into MeSH terms.

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 2 workshops during this period. Mentored a group of first year students in 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 Robotics 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.

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