Sakshi Agarwal

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EDUCATION

UNIVERSITY OF CALIFORNIA, IRVINE
First Year PhD student in CS

IIT KHARAGPUR
B.Tech in EE (Instrumentation), MINOR in CSE with 8.26 GPA (Graduated in 2017)

COURSEWORK

GRADUATE

- Reasoning in Graphical Models
- Probabilistic Inference
- Introduction to Artificial Intelligence
- Visual Computing

UNDERGRADUATE

• Information Retrieval • Machine Learning • Intelligent Systems • High Performance Parallel Computing • Computer Architecture and Operating Systems • Algorithms + Lab • Programming and Data Structures + Lab • Probability and Stochastic Processes • Statistics • Intelligent Control • Embedded Systems

PUBLICATIONS

• Sandya Mannarswamy, Sakshi Agarwal. **Odium Revelio! Detecting Subtle Hate Speech in Online Conversations** . Workshop for Women in Machine Learning (WiML NeurIPS 2019)

• 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)

• 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

EXPERIENCE

XEROX RESEARCH CENTER INDIA | Budding Scientist
July 2017 – July 2019 | Bangalore, India

Hate Speech Detection

- Built an attention based RNN model to detect hate-speech in online comments of an article. focusing on subtle hate speech comments.
- Features for the model include article titles, previous comments. Scraped some 200 Fox-News comments to ensure a balance in the existing dataset.

Crime Analytics

- Built a model to predict the time of occurrence of crime events in a particular city based on its past crime events.
- Focused on increasing prediction accuracy in low crime cities using the concept of metric learning to cluster cities and then, use representations of 'similar' cities to predict for low crime cities.
- Parallel version of K-Means algorithm was implemented in R Server on Microsoft Azure for a distributed platform implementation.
- 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.

INTERNSHIPS

TCS INNOVATION LABS May 2016 - July 2016 | Gurgaon, India
Regularizing Recurrent Neural Networks

- Built a system to classify user queries into hardware, software and e-mail related issues. Implemented a Recurrent Neural Network (LSTM) classifier, to be integrated with an existing online interaction system.
- 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.

DUKE UNIVERSITY | May 2015 - July 2015 | Durham, United States
Wildlife Conservation Project

- 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.

Negometer

- 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.
- Application of sentiment analysis through machine learning algorithms was the primary focus with collaborating the audio and the text attribute together.

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.

SKILLS

PROGRAMMING

C • C++ • Python • Java(basics) • Android • MATLAB

DEEP LEARNING

Theano •Tensorflow

BIG DATA

Spark • Hadoop

SOFTWARES

ROS • Solidworks • AVR

LINKS

Github:// sakshiagarwal.github.io
LinkedIn:// sakshi-agarwal-6a8b6186

UNDERGRADUATE PROJECTS

BIOMEDICAL SEMANTIC INDEXING | Aug 2016-Mar 2017

Prof. Sudeshna Sarkar

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.

ACHIEVEMENTS

ACHIEVEMENTS AND AWARDS

- 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.
- Secured a rank of 15 in the T.I.M.E National Scholarship Test 2008 with a wide participation from students in West Bengal.