Kushagra Singh

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EXPERIENCE

Research Assistant   June 2017 – July 2017
MiMove Research Team, INRIA Paris

● **Improved accuracy** of noise and air pollution data collected by an in-house mobile application (Ambiciti) by detecting spatiotemporal anomalies.
● Successfully used **density-based clustering** and **outlier detection** algorithms on **10 million points**.
● Segmented the data into clusters with no correlation using spatiotemporal attributes and ran **clustering parallelly**.

Data Science Intern   Jan 2017 – Apr 2017
iRageCapital Advisory Pvt Ltd, Mumbai

● Used ML algorithms for creating **equity trading strategies**; modelled temporal tick by tick data using a combination of **LSTM RNNs** and **CNNs**.
● Developed data pipelines that handled **terabytes of temporal data** for model training, collected from Bombay Stock Exchange's real time tick by tick data feed.

Open Source Developer   May 2015 – August 2015
Google Summer of Code

● **Funded via GSoC** to develop software for the opensource library FLINT - Fast Library for Number Theory, used by mathematical software like Sage & Singluar.
● Implemented the **Lenstra ECM** algorithm for **big-integer factorization** in C. The algorithm factorised **300 bit** integers (having 60 bit prime factors) in **0.3 seconds**.
● Contributed 16,000+ lines of C, using low level functions of GNU Multi Precision Bignum library (GNU MP).
● Link to code – www.iamkush.me/flint

Undergraduate Researcher   Jan 2016 – May 2018
Precog Research Group, IIIT Delhi

● **Developing NLP tools** for **code-mixed text** generated on Online Social Networks (OSNs).
● Models are being used in a **data analysis tool** that performs real-time analysis of content on OSNs for **detecting spam propagation** and sentiment about events.
● Project funded by the Government of India, deployed and used by **75+ government security agencies**.

Teaching Assistant   July 2016 - Present
IIIT Delhi
● Probability and Statistics   (Winter 2018)
● Machine Learning   (Fall 2017)
● Introduction to Programming   (Fall 2016, Fall 2018)
● Data Structures and Algorithms   (Summer 2016)

SKILLS

LANGUAGES	Python, C, Bash Scripting
SOFTWARE	Keras, TensorFlow, Scikit-learn, Pandas, Numpy, MongoDB, Git, Django, Nginx

EDUCATION

B. TECH   **IIIT Delhi – CGPA 9.05 / 10.0**
COMPUTER SCIENCE AND ENGINEERING
2014 - DECEMBER 2018 (EXPECTED)
Chairman's Merit Scholar

PUBLICATIONS

● **Language Identification and Named Entity Recognition in Hinglish Code Mixed Tweets**
ACL 2018, SRW
Kushagra Singh, Indira Sen, Ponnurangam Kumaraguru
Author's version – iamkush.me/aclsrw2018

● **A Twitter Corpus for Hindi-English Code Mixed POS Tagging**
ACL 2018, SocialNLP
Kushagra Singh, Indira Sen, Ponnurangam Kumaraguru
Author's version – iamkush.me/socialnlp2018/

● **Multi-task Learning for Target-dependent Sentiment Classification**
PAKDD 2019
Divam Gupta, Kushagra Singh, Soumen Chakrabarti, Tanmoy Chakraborty
Author's version – iamkush.me/pakdd2019/

PROJECTS

2018   **Healthcare QA System**
Developed question answering system for disseminating health care information among mothers in rural India, challenges included keyword extraction in code mixed questions.

2017   **Backpack Oracle**
Built a course selection tool for IIIT-D. Reverse engineered API for internal use of CMS by using a MITM attack to extract mobile token; bit.ly/bporacle

2016   **AI solver for the 2048 puzzle**
Designed solver for 2048 puzzle using heuristic searches (Expectimax and Minimax). Watch the bot play here iamkush.me/2048

2015   **Unblur Scribd**
Developer and maintainer of an open source Chrome Extension to view blurred documents on Scribd.com. *Used by* **21,000+ users** *and* **200,000+ downloads** *from 177 countries;* iamkush.me/unblur

ACHIEVEMENTS

2018   **ACL Student Travel Award**
Funded by Google to attend ACL 2018

2017   **INRIA Internship Program**
Among 20 Indian students to be selected to intern at INRIA Research Lab, France

2014   **Joint Engineering Exam - Rank 2401**
Among over 1.3 Million students in India