Sagar Aggarwal

LinkedIn ⋄ Github ⋄ https://sagar-aggarwal.github.io/

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EDUCATION

Netaji Subhas Institute of Technology, University of Delhi — New Delhi

B.E. in Computer Engineering; First Class with Distinction — *Aug 2014 - May 2018*

***CGPA**: 8.344, **Percentage**: 75.94%*

Gyan Bharti School — New Delhi

Class XII, AISSCE — *March 2014*

*CBSE; **96.6%***

PATENTS

Method and electronic device for automatically animating graphical object, Ramasamy Kannan, Vishakha S.R,**Sagar Aggarwal**, Lokesh Rayasandra Boregowda , Indian Patent No. 202141014476, Aug. 2021

Model based Multi-Vew Scene Generation and Representation for AR & VR, Ramasamy Kannan, Lokesh Rayasandra Boregowda, **Sagar Aggarwal** , Indian Patent No. 202041038488, Jul. 2021

Method and electronic device for generating AR content based on intent and interaction of multiple-objects, Ramasamy Kannan, **Sagar Aggarwal**, Lokesh Rayasandra Boregowda , Indian Patent No. 202041043804, Oct. 2020

INDUSTRY EXPERIENCE

Flipkart Private Limited — Bangalore

***Software Development Engineer II**, WMS Inventory, Fulfilment Service Group* — *April 2021 - Present*

- Designed and developed Unified Inventory View Platform(UIVP), a system which combines the warehouse data in a structured manner and creates an inventory snapshot in real time using Spark, Hadoop, Kafka and Elastic Search.
- The system currently holds an average of 70 lakh records per month and is used by 4 internal teams to generate month end closure reports.
- Was selected by team lead to mentor and on board 3 new team members.

SAMSUNG Research Institute — Bangalore

***Machine Learning Engineer**, AR Rendering Engine Development, AR Vision Solutions* — *March 2020 - April 2021*

- RQ filed 3 patents.
- Implemented an end to end 2D Hand-pose estimation solution by training inception and Resnet networks and created a demo android app on Note 10 using Snapdragon(SNPE) library.
- Co-proposed and implemented 3 novel approaches to improve Selfie-Type (CES2020), a virtual keyboard concept which allows users to type using any hard surface by tracking their finger moments and predicting the characters.
- Approaches - trained different networks to predict finger, hand, tap event etc using DNN and Multi-Task learning for character determination; used LSTM networks to predict micro gestures for character detection; front view to top view conversion and adding hand mesh to show hands over keyboard.
- Created a calibration network for static hand placement having 6 distinct classes.
- Designed protocols and methods for data collection, annotation and pre-processing for over 5 lakh images for training various networks.
- Implemented and productionized Ambient Sound and Color Engine which uses real time sound and colour inputs to create AR effects.
- Worked on body pose estimation and action recognition for Samsung's Virtual Fitness App.
- Mentored 2 Interns during the summer of 2020.
- Proposed and led projects in collaboration with KLE Tech University.

SAMSUNG Research Institute Bangalore

***Software Engineer**, Elderly Care Service, IoT Services* *July 2018 - March 2020*

- Worked as a back-end Engineer for the design and implementation of 7+ microservices dealing with emergency events, endpoints, and real time monitoring services for the care microservice handling millions of users (part of Samsung IoT cloud).
- Conceptualized the custom API designs for OCF capabilities for different IoT devices such as Lux and DVS cameras required for TheCare Service.
- Owned complete ownership of 3 microservices under TheCare Architecture.

SAMSUNG Research Institute Bangalore

***Software Intern**, Voice Intelligence* *June 2017 - July 2017*

- Implemented new CNN models for scope based voice command classification with 60% accuracy.
- Trained and fine tuned earlier models related to different components for Bixby voice assistance.
- Reduced speed and training time by 10%.

RESEARCH EXPERIENCE

Indraprastha Institute of Information Technology New Delhi

***Research Intern** with Dr. Rajiv Ratn Shah* *July 2018 - September 2019*

- Crowd sourced a dataset of 20K Hindi Sentences and constructed classification models for emotion classification .
- Developed tool for annotations of Hindi words using Best-Worst Scaling Algorithm to generate lexicons with sentiment scores. A corpus of 14,000 hindi word sample set was annotated for initial analysis.
- Analysed Social Sent Paper to generate domain specific sentiment lexicon using Leipzig corpus.
- Used Firefly Algorithm for feature selection in Suicide Ideation.

Netaji Subhas University of Technology New Delhi

***Undergraduate Research Assistant** with Dr. Swati Aggarwal* *July 2017 - May 2018*

- Implemented various feature extraction methods on EEG signals using time, frequency, time-frequency domain analysis and multi electrode methods in MATLAB.
- Implemented Deep learning models for classification and regression methods with a 10% increase in accuracy, precision and recall from previous algorithms.

PUBLICATIONS

S. Aggarwal, L. Aggarwal, M. S. Rihal and S. Aggarwal. *EEG Based Participant Independent Emotion Classification using Gradient Boosting Machines.* IEEE 8th International Advance Computing Conference (IACC), 2018

R. Sawhney, R. R. Shah, V. Bhatia, C. Lin, **S. Aggarwal** and M. Prasad. *Exploring the Impact of Evolutionary Computing based Feature Selection in Suicidal Ideation Detection.* IEEE International Conference on Fuzzy Systems (FUZZ-IEEE), 2019

Yaman kumar, Debanjan Mahata, **Sagar aggarwal**, Anmol Chugh, Rajat Maheshwari, & Rajiv Ratn Shah. *BHAAV - A Text Corpus for Emotion Analysis from Hindi Stories* arXiv preprint arXiv:1910.04073, 2019

PROJECTS

NSIT Connect -Windows and Android Version of the College's official app

- Designed modules like college news update, maintaining a schedule according to the timetable, all the information related to interesting places of the college, and more.
- Prepared Location module for searching hangout places near you, attendance tracker which keeps a record of current attendance and implemented Notification using GCM.

CryOut – A Social Welfare, Crime Monitoring & Prevention App Implemented features such as file a Complaint, a discussion forum for anonymous users, NGO registration section and instant SOS help.

PROGRAMMING SKILLS

Languages : Java, Python, SQL, C++

Technologies and Frameworks Spring-Boot, Micro Services, PostgreSql, MySQL, DynamoDB, Kafka

ACCOMPLISHMENTS

Professional Certification - 4th Level of Samsung's SWC Certification(Success Rate - 30% employees of SRIB),2019

Nipun Award - Best Award for IoT solutions for Elderly Care Service, 2019

Scholarship - Higher Education - under INSPIRE (5 years)2014

Olympiad Rank - 164 - SOF International Mathematical Olympiad (IOM), 2013.

Bronze medal - National Level Maths Talent Test - Manav Sthali School, 2013

Vice Captain - School Team, Skating Hockey – Goalkeeper, 2009

TEACHING/LEADERSHIP EXPERIENCE

Windows App Lead Coordinator, NSIT Online - Created Windows version of college official app.

Google Developer Student Club Mentor, Core Team - Took sessions on Android Development.

Director of Resource Management, Rotratct Club of NSIT - Organized collection drives, workshops, events like Masoom Duniya, Sadbhavna etc. for children with special abilities. Involved in managing IT and Financial Resources for the club.