

## EDUCATION

---

### **Netaji Subhas Institute of Technology, University of Delhi**

*B.E. in Computer Engineering; First Class with Distinction*

*CGPA: 8.344, Percentage: 75.94%*

New Delhi

*Aug 2014 - May 2018*

### **Gyan Bharti School**

*Class XII, AISSCE*

*CBSE: 96.6%*

New Delhi

*March 2014*

## PUBLICATIONS & ARTICLES

---

**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, [doi:10.1109/IADCC.2018.8692106](https://doi.org/10.1109/IADCC.2018.8692106)

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, [doi:10.1109/FUZZ-IEEE.2019.8858989](https://doi.org/10.1109/FUZZ-IEEE.2019.8858989)

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, 2019, <https://arxiv.org/abs/1910.04073>

## 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-View 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**

*Software Development Engineer II, WMS Inventory, Fulfilment Service Group*

Bangalore

*April 2021 - Present*

- Developed *Unified Inventory View Platform (UIVP)* for internal teams, a system that consolidates 70 lakh warehouse records per month and creates an inventory snapshot in real time using spark, Hadoop, Kafka and Elastic search.
- Supported the team for warehouse on-call issues during *Big Billion Day 2021* festive sale with 250 million consumers in India.
- Was selected by manager to mentor and on board 3 new team members.

### **SAMSUNG Research Institute**

*Machine Learning Engineer, AR Rendering Engine Development, AR Vision Solutions*

Bangalore

*March 2020 - April 2021*

- Improving *Selfie-Type (CES 2020)*
  - \* Built 2D Hand-pose estimation module using Inception Net, ResNet, and MobileNet in the current solution.
  - \* Designed and built hand calibration engine which helps with proper hand placement and collects initial calibration data.
  - \* Researched, designed and prototyped novel key detection engines for improving the solution - trained finger, hand, tap detection networks (individual and multi-task learning) to improve precision and recall to approx 50% using hand pose data; leveraged the bend of fingers for different keys to train micro gesture classifier using LSTM with 60% precision and recall.

- \* Co-proposed and implemented novel solution of displaying hand over the keyboard by extrapolating top-view from front view of hand, filed a patent ([2<sup>nd</sup> patent](#)) by expanding the idea for multi-view scene generation in AR/VR.
- \* Designed guidelines for collection and annotation of over 3 lakh images for different networks.
- \* Built an android application and integrated the networks using SNPE library on Note 10/S10.
- o *Samsung Fitness Application*
  - \* Collected and crowd sourced video time series data for 10 exercises from multiple views using 6 Fold-2 phones.
  - \* Trained body pose estimation module using COCO/MP-II dataset and fine tuned on the internal dataset.
  - \* Developed the action recognition module for rep counting and exercise correction.
  - \* Built an android application and integrated these modules.
- o Contributed to the development for displaying graphic effects(jumping, growing, shrinking etc.) on Augmented text based on the ambient sound and dominant color.
- o Filed 3 patents with team as co-inventor. ([See patents](#))
- o Mentored interns and proposed projects for *Samsung Student Ecosystem for Engineered Data (SEED) Lab*.

## **SAMSUNG Research Institute**

Bangalore

*Software Engineer, Elderly Care Service, IoT Services*

July 2018 - March 2020

- o
- o Built and deployed 7+ microservices on AWS dealing with emergency events, endpoints, and real time monitoring handling millions of users.
- o Worked with camera, voice and testing for cross-functional dependencies in emergency feedback service.
- o Conceptualized the custom API designs for OCF capabilities for different IoT devices such as Lux and event cameras.
- o Performed query optimisations on Sql and DynamoDB.

## **SAMSUNG Research Institute**

Bangalore

*Software Engineering Intern, Voice Intelligence R&D*

June 2017 - July 2017

- o Implemented CNN models for execution of contextually aware (scope based) voice commands with 60% accuracy.
- o Reduced speed and training time by 10%.
- o Familiarisation with bag of words, Doc2Vec and TF-IDF embeddings.

## **RESEARCH EXPERIENCE**

### **Indraprastha Institute of Information Technology**

New Delhi

*Research Intern with Dr. Rajiv Ratn Shah*

July 2018 - September 2019

- o Contributed to [BHAUV](#), a crowd-sourced dataset of 20K Hindi sentences and constructed baseline classification models for sentiment analysis.([See Article on arxiv](#))
- o Built [BWSAT](#), a tool for generating rating scale for any lexicon using Best-Worst-Scaling Algorithm, extracted 14K hindi words samples along with their meaning from various sources(Leipzig, dictionary, etc.)
- o Analysed Social Sent Paper to generate domain specific sentiment lexicon using LeipZig corpus.
- o Published a paper which studies the use of firefly algorithm for feature selection in classifying tweets with suicidal ideation.([See Conference Publications](#))

### **Netaji Subhas University of Technology**

New Delhi

*Undergraduate Research Assistant with Dr. Swati Aggarwal*

July 2017 - May 2018

- o Built **EFEACT**, a general purpose for EEG analysis using signal processing techniques, feature selection and classifiers for any EEG dataset.
- o Implemented feature extraction modules using time, frequency, time-frequency domain analysis and multi electrode methods in MATLAB.
- o Published a paper with moderate accuracy improvement and decreased execution time using statistical features and Gradient boosting algorithms on DEAP Dataset.(See [Conference Publications](#))

## PROJECTS

---

### Traffic Sign Recognition, Winter Training | [Code](#)

A traffic sign recognition system trained on GTSRB dataset and LeNet.

### NSIT Connect - Android Version of the College's official app | [Code](#) | [Playstore](#)

Part of nsitonline team and built location module for searching nearby hangout places, attendance tracker, notifications using GCM and contributed to overall development of the app.

### NSIT Connect - Windows Version of the College's official app | [Code](#)

Independently developed the app from scratch and designed modules like college news update, timetable and schedules, video play using YouTube, code radar, and more.

### CryOut – A Social Welfare, Crime Monitoring & Prevention App | [Hack@NSIT](#) | [Code](#)

Developed android app for Social Welfare theme - file a complaint, discussion forum, NGO registration, and instant SOS help feature.

### GameZone, Winter Training Project, 2016 | [Code](#)

A gaming console with Puzzle Maker, Brick Braker and Poker.

## PROGRAMMING SKILLS

---

**Languages :** Java, Python, SQL, C++

**Technologies and Frameworks :** Spring-Boot, Micro Services, PostgreSQL, MySQL, DynamoDB  
Kafka, Spark, HDFS

**Deep Learning Frameworks :** Keras, Tensorflow

## 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), Govt. Of India, 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

---

**Project Advisor for [SEED Lab](#)** - Proposed projects for Lab at KLE Tech Univeristy, 2020

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

**Google Developer Student Club Mentor, Core Team** | [Github](#) - Took sessions on Android Development.

**Director of Resource Management, Rotract Regency 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 team.