

# Gaurav Sinha

Samsung Research

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Senior Software Engineer

July, 2018-Present

## Patents and Publications

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[1] [Method and System of Network Handover on Transport Layer](#)

Madhan Raj, C Nam, **Gaurav Sinha**, Gunjan K Chaudhary, Karthikeyan A, Sunghee Lee, S Jayaseelan, D S Sabareesh, Harikrishnan N

Patent Application No. : 201941033010 | Grade: A1

[2] [QSOCKS: Design and Method of Socks over QUIC](#)

Madhan Raj, S Jayaseelan, Gunjan K Chaudhary, **Gaurav Sinha**, Karthikeyan A

Patent Application No. : 201941008695 | Grade: A1

[3] [Generic Search Optimizer and Library Books Recommendation System](#)

Chandan Suri, **Gaurav Sinha**, Arpita Singh, Shalini Batra

*International Research Journal of Engineering and Technology (IRJET)*

[4] [QSOCKS: 0-RTT Proxification Design of SOCKS Protocol for QUIC](#)

Madhan Raj, Sudeep Singh,, S Jayaseelan, M K Maheshwari, Gunjan K Chaudhary, **Gaurav Sinha**

Patent Application No. : 201941008695 | Grade: A1

[5] [Cross-Layer QUIC \(CQUIC\) for Next Generation Mobile Networks](#)

**Gaurav Sinha**, Madhan Raj, S Jayaseelan, Gunjan K Chaudhary

*IEEE Wireless Communication and Networking Conference 2020*

[6] [Novel Multi pipe QUIC Protocol to Enhance the Wireless Network Performance](#)

Gunjan K Chaudhary, Harikrishnan N, Karthikeyan A, Madhan Raj, S Jayaseelan, **Gaurav Sinha**, Debabrata Das

*IEEE Wireless Communication and Networking Conference 2020*

## Research Experiences

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### EDCOVASP: Early Detection of Covid using Audio Signal Processing

April 2020 - Ongoing

- Data Preprocessing and cleaning the scraped data from twitter and gathered data from medical institutions to generate samples and embeddings..
- Fine tuned existing model VGG-16 over youtube videos for detecting cough vs non cough audio sample.
- Used the traditional Tree Based algorithm of scikit learn to detect covid patients with accuracy ~85%..
- Using the generated cough embeddings and signal embeddings over google tabnet to increase efficiency.

### Search Optimization for University's Central Library

Spring 2017 - Winter 2017

Guide: Prof. [Shalini Batra](#), Thapar Institute of Engineering & Technology

- Used data-driven approaches for finding dense correspondences between textual data of nearly 100 million books.
- Use of NLP pipeline and ISBN indexing to issue tags by finding correlation using descriptor similarity between books and then developing Markov Chain using neural networks for stochastic predictions.
- The solution outperformed legacy search in the library, consequently, a correlation of 0.84 was achieved with *word2vec*.

### Morphological Segmentation using stack LSTM

Summer 2017

Guide: Prof. [A.K. Singh](#), IIT B.H.U.

- Worked over [Morpho Challenge 2010](#) dataset by implementing state-of-the-art Morfessor Baseline method.
- Devised an algorithm to capture underlying grammatical construction to extract morphemes.
- Optimized the algorithm using likelihood predictions, thereby achieving an F-score of 44% for the English language.

## Genetically Modified Tetris

Fall 2017

Guide: Prof. P.S. Rana, Thapar Institute of Engineering & Technology

- Implemented the Genetic Algorithm into Tetris taking into account all possible block combinations.
- Used variation, inheritance, limited space, competition for natural selection along with two-point crossover.
- Experiments outperformed the fuzzy logic-based Tetris and achieved a maximum of 4 million line clearances.

## Experience

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### Samsung Research and Development

July 2018-Present

Senior Software Engineer

Bangalore, India

- Working over Network Daemon (Netd) to manage and control background processes of Android Platform Network.
- Building Intelligent Machine learning solutions for wireless networks for smart packet routing and vertical handovers.

### Samsung Research and Development

January 2018 - June 2018

Software Development Intern

Bangalore, India

- Worked over Big Data technologies for the Video and Web Quality services (VWQS) calculating the KPIs for the data gathered by operators using Apache spark.
- Optimized the query processing time of the existing data analysis system using Apache Kylin by almost ~63%.

### WNS Global Services Pvt. Ltd.

June 2017 - July 2017

Software Development Intern

Gurgaon, India

- Worked in Analytics Team as a full stack developer, to calculate set KPIs using SQL procedures.
- Analyzed the North American Airlines data and calculated KPIs over Tableau.

### Aspiring Minds Assessment Pvt. Ltd.

June 2017 - July 2017

Test Developer

Gurgaon, India

- Worked part-time in the Research Team in Code Rating Project and graded 960 codes.
- Prepared dataset used in Automata Code Evaluation to grade coding problem.

## Education

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### Thapar Institute Of Engineering and Technology

2014-2018

Bachelor of Engineering in Computer Engineering

GPA:8.97

Punjab, India

## Awards & Honors

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- Winner Merit Award of INR 25000 for 5G Ideation Contest for gaming solution using QUIC [May, 2020]
- Received Samsung Citizen Award in Technical Innovation Category at Samsung Research, Bangalore [H1,2020]
- Received Samsung Citizen Award in Advance Development Category at Samsung Research, Bangalore [H1,2020]
- Received Samsung Citizen Award in Research to Development Category in Samsung Research, Bangalore [Q3,2019]
- Selected 1 among 15 for Summer Research Fellowship at IIT B.H.U [2017]
- Winner weekly coding challenge at the Institute level for the month-long coding challenge [2016]
- Recipient of Merit Scholarship for consecutive years [2014, 2015]
- Honorable mention and event icon for Ideathon for being national coordinator [2015]

## Certifications

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|---|------------------------|---------------|
| • <u>CS231n: Convolutional Neural Networks for Visual Recognition</u> |                        | August 2020   |
| • <u>Sequence Models by deeplearning.ai</u>                           | Organization: Coursera | January 2020  |
| • <u>Improving Deep Neural Networks by deeplearning.ai</u>            | Organization: Coursera | December 2019 |
| • <u>Neural Networks and Deep Learning by deeplearning.ai</u>         | Organization: Coursera | November 2019 |
| • <u>Data Science Specialization by John Hopkins University</u>       | Organization: Coursera | July 2019     |
| • <u>Machine Learning with Python &amp; Python for Data Science</u>   | Organization: IBM      | June 2018     |