

# Gaurav Sinha

## Samsung Research & Development

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Software Engineer

2018-Present

## Interests

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Deep Learning, Natural Language Processing, Knowledge Representation & Learning and Mathematics

## Patents and Publications

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

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

Patent Application No. : IPO201941033010 | 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. : IPO201941008695 | Grade : A1

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

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

Submitted in *IEEE Wireless Communication and Networking Conference 2020* | Status: Under Review<sup>+</sup>

### [4] Novel Multi pipe QUIC Protocol to Enhance the Wireless Network Performance

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

Submitted in *IEEE Wireless Communication and Networking Conference 2020* | Status: Under Review<sup>+</sup>

<sup>+</sup> preprints available in additional supporting documents

## Research Experiences

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### 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 Morphessor 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 achieving a maximum of 4 million line clearances.

## Experience

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### Samsung Research and Development Software Engineer

July 2018-Present  
Bangalore, India

- Working over Transport and Network Layer to develop Kernels for new improved Data Protocol Solution
- in Samsung' Flagship Android Smartphones.
- Building Intelligent Machine learning solutions for wireless network for smart packet routing and
- vertical handovers.

### Samsung Research and Development Software Development Intern

January 2018 - June 2018  
Bangalore, India

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

### WNS Global Services Pvt. Ltd. Software Development Intern

June 2017 - July 2017  
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. Test Developer

June 2017 - July 2017  
Gurgaon, India

- Worked part-time in 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 Bachelor of Engineering in Computer Engineering GPA - 8.97/10

2014-2018  
Punjab, India

## Honors & Co-curriculars

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- Received the coveted Samsung Citizen award among ~2500 working professionals [Q3,2019].
- Recipient of Merit Scholarship for two consecutive years [2014-2015]
- Convenor & Head of Creative Computing Society: Largest technical Computer society [2016-2017].
- National Coordinator Ideathon: Led a team of 40 to organize a startup incubation contest [2015].
- Convenor Saturnalia: Managing a team of ~100. for the technical and cultural festival of Thapar Institute of Engineering & Technology [2015]

## Certifications

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|--|------------------------|---------------|
| • <a href="#">Neural Networks and Deep Learning by deeplearning.ai</a>       | Organization: Coursera | November 2019 |
| • <a href="#">Data Science Specialization by John Hopkins University</a>     | Organization: Coursera | July 2019     |
| • <a href="#">Machine Learning with Python &amp; Python for Data Science</a> | Organization: IBM      | June 2018     |

## Technical Skills

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|----------------------|---|
| Programming Language | Fluent in C/C++, Python; Familiar with Java, UNIX Scripting                           |
| Libraries            | NumPy, TensorFlow, Scikit-Learn, Pandas, Keras, Matplotlib                            |
| Software Skills      | R, git, MATLAB, L <sup>A</sup> TEX, CMake, Apache Kylin, Hive, Android Studio, docker |

## **Big Data**

Familiarity with Apache Hadoop, Map Reduce, Hive, Kylin, HBase