Gaurav Sinha

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Samsung Research

Senior Software Engineer

July, 2018-Present

Patents and Publications

[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

EDCOVASP: Early Detection of Covid using Audio Signal Processing *May 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 symptoms embeddings over CNN and 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

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

Thapar Institute Of Engineering and Technology *2014-2018*
Bachelor of Engineering in Computer Engineering *GPA:8.97* *Punjab, India*

Awards & Honors

- 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

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