Gaurav Sinha

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Samsung Research and Development

Senior Software Engineer
July, 2018-Present

Patent 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 (*Switching mechanism for TCP, UDP, and QUIC protocol which uses Machine Learning*)*
Filed in US/India Patent Office | Status: Accepted

[2] **Method and System for MPQUIC over QSOCKS in Wireless Network**
Madhan Raj, S Jayaseelan, **Gaurav Sinha**, Bhagwan Dass Swami, Gunjan K Chaudhary, Karthikeyan A
US Patent Application No.: 16810261

[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), 2020 | Volume 7, Issue 8

[4] **QSOCKS: 0-RTT Proxification Design of SOCKS Protocol for QUIC**
Madhan Raj, Sukhdeep Singh, S Jayaseelan, M K Maheshwari, Gunjan K Chaudhary, **Gaurav Sinha**
IEEE Access Journal, 2020 | Volume 8

[5] **CQUIC: Cross-layer QUIC for next generation mobile networks**
Gaurav Sinha, Madhan Raj, S Jayaseelan, Gunjan K Chaudhary
IEEE Wireless Communication and Networking Conference 2020

[6] **Novel MultiPipe QUIC protocols 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

** Being used in Samsung Flagship Smartphones as 'Connect4Sure' solution*

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 learns 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 using the Hidden Markov Model for stochastic predictions.
- The solution outperformed legacy search in the library, achieving an accuracy of 85%..

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 2016*

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.

*** More Projects hosted over **Github***

Experience

Samsung Research and Development

Senior Software Engineer *March 2020 - Present*
Bangalore, India

- Working over Network Daemon (Netd) to manage and control the background processes of Android.
- Developing solutions that use protocols like QUIC, HICN, STUN to enhance user-experience on 5G Samsung smartphones.
- Building Intelligent Machine learning solutions for wireless networks for smart packet routing and vertical handovers.

Software Engineer *July 2018 - Feb 2020*
Bangalore, India

- Designed the new destination request format for QSOCKS.
- Developed the proxy solution over QUIC protocol for mobile device gaming applications
- Developed an on device Machine Learning solution that improves user network performance in weak network conditions

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 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 2016 - July 2016*

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. *May 2016 - July 2016*

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 of **Mobile Business President TM Roh** for contribution in **"World First 5G Standalone Launch"**. [Q3, 2020]
- Winner of **Merit Award** for team solution presented in **5G Ideation Contest** for gaming solution using QUIC [May 2020]
- Received Samsung Citizen Award as **'Technical Innovator'** 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 at Samsung Research, Bangalore [Q3,2019]
- Recipient of **Merit Scholarship** for two consecutive years [2014, 2015]
- Recipient of Honorable mention at Ideathon for being a **national coordinator**. [footfall of more than 20 colleges, 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: Cognitive Class* — *June 2018*