

UTSAV GUPTA

Personal Info

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Skill Sets

- **Languages:** C, C++14, C++17, Python, PHP, HTML 5, CSS
- **CI/CD pipeline:** Git actions, Jenkins
- **Tools:** GDB, Git, Cmake, Premake, Conda package management
- **Concepts:** System Software, Design Patterns, OS, Computer Org & Arch, Data Structure & Algorithms

Personal Projects

- Designed **Low Latency, Multi-threaded C++** Logging Library
- Designed Low Latency, **Asynchronous Data Server** to capture **market data from rest APIs** (HTTP/Websockets) using Boost ASIO library
- Designed **Autonomous self-driving car model** for dynamic & fuzzy traffic
- Built **High-Speed Line Following Robot** using Arduino based controller and PID control system
- **Real-Time detection & classification of vehicles** and pedestrian from CCTV footage

Awards & Achievements

- Secured **1st Rank in ELECTRADE**, Techkriti 2016, IIT Kanpur
- Secured **1st Rank in Robotrix**, Takneek 2014, IIT Kanpur
- Ranked (**AIR**) **427** amongst top 20,000 candidate in JEE Advanced 2013
- Ranked (**AIR**) **785** amongst 1.4 Million applicants in JEE Mains 2013
- Secured **Worldwide Rank 13** in Technothon, IIT Guwahati, 2012



Education & Qualification

B.Tech (Hons.) | Electrical Engg. | Minor in CS (Algorithms)
Indian Institute of Technology, Kanpur | CGPA: 8.9/10 | Jul 2013 – Jul 2017

Work Experience

Tower Research Capital, India – SDE II

Trading platform development for Crypto Markets | May 2019 – July 2022

- Designed & Developed **C++ latency sensitive Trading platforms** for Crypto currencies markets, Including Market Data (with Arbitration) and Order Entry (Trade server) platforms
- Automated & Developed various tools like **Crypto-Exchange-Replayer, Market Data Alert Manager, High speed RPC library over HTTP2, Stuck Order & Recovery Manager**, etc. to improve trading platform reliability & performance
- **Skills achieved** – C++14/17, Crypto Exch. Protocols, HTTP-2 Protocols, CMake, GDB, Jenkins/Git Actions

Samsung R&D Bangalore, India – Senior Software Engineer

4G-LTE & eMTC Protocol Stack (Mac Layer) Development | July 2017 – April 2019

- Designed & Developed various features of **MAC protocol stack** for **LTE & eMTC** 3GPP rel.12/13/14
- Implemented & Optimized **4G-LTE S/W module** like PUSCH & PUCCH resource allocation, **VOLTE QoS & eMTC scheduling algorithms**, 4G handover
- Automated the testing platform for MAC layer using **Google-Test framework**
- **Skills achieved** – C, C++, 3GPP LTE rel.12/13/14, Teraterm, G-Test framework

Academic Projects

Real-time IRIS recognition using DCT

Real-time IRIS recognition using DCT | Jan 2017 – Apr 2017

- Designed & Implemented **Real-time IRIS recognition system** using Discrete Cosine Transformation(**DCT**) and **PCA** for feature extraction and Machine Learning models for classification and achieved the accuracy of 98.7%

Computer System Security (Securing Web Server)

B.Tech. Project | Under Prof. Sandeep Shukla | Aug 2016 – Nov 2016

- Designed and executed **Buffer Overrun Attacks, Code injection, Control Hijacking** and return-to-libc attack to break security properties of server
- Improvised server security by **Privilege Separation, Server-Side Sand-boxing & Stack Canaries**