Sumit Lahiri

Personal Data

Current Status :	Ph.D. Student, Dept Of CSE, IIT Kanpur
Research Areas :	Formal Methods & Programming Languages
Date of Birth :	11 May, 1993
Phone:	+91 9007342270, +91 9123836199, +91 9874812666
Offical email :	sumitl@cse.iitk.ac.in, lahiri.devs@gmail.com
Portfolio :	https://lahiri.netlify.app
HackerRank Profile :	https://www.hackerrank.com/BackEndDev
LinkedIn Profile :	https://www.linkedin.com/in/sumit-lahiri/
Research GitHub :	https://github.com/lahiri-phdworks
Programming Stack :	MERN/PERN Stack, Golang, Python, C++, React, Node.js
Databases :	PostgreSQL, MongoDB, CouchDB, MySQL, SQLite
Blockchain Experience :	IBM Hyperledger, Solidity(EVM), Golem & Bitcoin

Work Experience (2yrs)

Current
May 2019 | Ph.D. Research Scholar & Teaching Assistant at IIT Kanpur
Teaching Assistant
Research Area : Formal Methods & Software Engineering
TA : Advanced Compiler Optimizations. Data Flow & Control Flow Analysis (CS 738A)
TA : Software Development & Operations. SOLID Principles, Software Design (CS253)
TA : Data Structures & Algorithms.(ESO207)

Recent
Mar-Sep 2018 | Remote Backend Developer at Golem Network
Node.js, Electron, Solidity, Golem Contracts
Built an EVM-Golem smart contract processing and compilation pipeline in Node.js using truffle, open-zeppelin, solc and node-parser.

Aug-Dec 2017 | Senior Manager at TATA Motors, PPPM
Product Manager
Developed a Web MVC application to ease project tracking on Excel using data from SAP Backend. Worked on AC Implementation Project for N2 & N3 M&HCV Vehicles.

Aug 2016-2017 | Graduate Engineering Trainee TATA Motors, PPPM
Product Manager (GET)
Managed VAVE Idea tracking and implementation on M&HCV Vehicles. Completed a full-fleged report on analysis of sheet metal cutting practices in TATA Motors.

Education

July 2019 | Ph.D in Computer Science & Engineering, **IIT Kanpur**, UP
Program Analysis, Verification and Testing.
Research & Thesis Advisor : Dr. Subhajit Roy, IIT Kanpur.

May 2016 | Undergraduate B.Tech Degree in Mechanical Engineering
First Class with 8.04/10 CGPA **NIT Durgapur**, Durgapur, WB
Thesis Advisor : Dr. Apurba Layek, NIT Durgapur

May 2012 | Higher Secondary (CBSE XII Exam) **Birla High School**, Kolkata, WB.
Grade: 88.0% Subjects : Physics, Maths, Chemistry, Computer Science & English.

May 2010 | Secondary (CBSE X Exam) **Birla High School**, Kolkata, WB.
CGPA: 9.6/10 Subjects : Maths, Science, Hindi, SST, Computer Science & English.

PhD Courses

CS654A Nov 2019	**Advanced Software Architecture** Design Patterns, ML, Blockchain, Zachman Framework, CAP Theorem Study of the backend architecture used for YouTube, Uber, Ola, WhatsApp, Line Messenger, Spotify (Hidden Pub-Sub), Medium (GraphQL Migration) & Facebook (Tao Graph) https://github.com/codersguild/System-Design
CS738A Nov 2019	**Advanced Compiler Optimizations** Dataflow & Control Flow Analysis, DCE, CSE, SSA, SSA-PRE, Alias Analysis *Course Project* C and C++ Memory Leak Detector based on Research Paper https://suif.stanford.edu/papers/pldi03d.pdf
CS622A Nov 2019	**Advanced Computer Architecture** DLP, ILP, TLP, Memory wall, Parallel programming, Shared Multi-processors *Course Project* Comparision of Hardware Data Prefetching Techniques (DPC Competitions) https://dpc3.compas.cs.stonybrook.edu/
CS675A *CS639A*	Designing Verifiably Secure Systems https://www.cse.iitk.ac.in/pages/CS698K.html **Program Analysis, Verification & Testing** Compilers, CFGs, Fuzzing, Symbolic Execution, Data-flow Analysis, Abstract Interpretation

Scholastic Achievements

July 2020	TCS COIN : Awarded Graduate Research Fellowship
March 2019	GATE : 95.5th percentile; Subject: (CS)
May 2012	AIEEE : 99.98th percentile, WBJEE : 99.7th percentile. IIT-JEE : 98.6th percentile,

Programming Projects :

Dec 2019	Simplr Lang : Developed a DSL for SMT Solving using Z3 Developed a toy DSL in scala using Packrat Parsers to demonstrate Z3 Constraint solving. Intention was to further develop it for symbolic execution in white-box fuzzing. https://github.com/codersguild/simplr
Aug 2018	WebSQL : Developed a online SQL query web application. Developed a simple Node.js + Express based website to query a remote MySQL database. Demonstrating HTTP GET/POST/DELETE Requests, CRUD Operations, API Design & SQL Injection attacks. https://sqlquerydemo.herokuapp.com
June 2020	Small Scale Video Conferencing App : VidConf A web-based application for small scale video conferencing and screen share using React on Jitsi tech stack. https://vidconf.netlify.app
June 2020	React Examples : Code Demos A netlify app to showcase some of my React.js examples. I have good working knowledge on React, ES6 Features, Redux, Node.js and Express. https://reactfullstack.netlify.app
May 2016	VideoDB : Developed a peer-to-peer video and movie sharing website Video and movie sharing and streaming website using MEAN Stack + ASP.NET hosted on Azure. Handled a peak load on 1 million users per week.