Nilesh Rathi

+91 8266881618 ◇ nileshrathi@iisc.ac.in ◇ /nileshrathi ◇ nileshrathi.github.io ◇ /rathi-nilesh
+91 7408654184 ◇ nileshrathi2011@gmail.com ◇ Skype id: live:nileshrathi2011

AREAS OF INTEREST

Distributed Systems, OS, Storage Systems, Computer Architecture, Machine Learning, Algorithms & Data Structures

EDUCATION

Indian Institute of Science, Bangalore - M.Tech(Research) *Since August 2018*
Department of Computer Science and Automation- **Advisor**- Prof. K. Gopinath CGPA: 9.0/10

Bundelkhand Institute of Engineering & Technology, Jhansi - B.Tech *August 2014 - July 2018*
Department of Computer Science and Engineering. Percentage: 71.74%

RESEARCH WORK

- **Blockchain Archiving using Rate-less Codes** *April 20 - Present*
  To reduce the size of blockchain by encoding it using pre-code based rateless codes. The encoding enables the recovery of blockchain with high probability by contacting a fixed number of nodes.
- **Sharding Blockchains without compromising security guarantees** *August 19 - Present*
  To scale blockchains transaction rate using sharding and verifiable computing without compromising security guarantees, i.e. making it secure against the dynamic adversary.

PROJECTS

- **Implemented a Map-Reduce like system in Golang** *April 20 - May 20*
  Implemented a Multi-threaded fault-tolerant variation of MapReduce for a single machine. Simulates master and workers using threads. Obtained **21x** speedup on workloads compared to there sequential evaluation.
- **Win predictor for ODI Cricket Matches** *September 19 - December 19*
  The aim is to accurately predict the winning probability of the team after every over using historical data. The predictor uses a combination of KNN, Neural network, and DLS method to solve this regression problem.
- **Dynamic Pinning In Data-Centers connected over IPFS** *March 19 - May 19*
  Extended IPFS cluster to support the dynamic pinning of objects based on its request frequency and position of requesting node. Under a high request setting, the modifications lead to **2.4x** speedup in read latency.
- **PintOS development** *January 19 - April 19*
  The objective of this project was to strengthen the functionality of PintOS (light-weight OS). This involved working on various aspects of an operating system including Threads, User Programs, Virtual Memory, and File Systems.
- **TlbXorCache: Quantifying the relationship of hit and miss rates of TLBs and Data Caches** *Sept 18 - Dec 18*
  Quantifying the relationship between TLB and DCache. Profiling various workloads like spec, Redis, GAP, etc. using *AMD IBS Toolkit* with focus on *Dead Blocks* i.e Cache blocks whose translations are absent in TLB.
- **A suggestive dictionary with spelling check and automatic completion** *January 18 - April 18*
  Build a dictionary app for android using Trie Data-Structure. Supports word-completion & suggests correction for misspelled words.

INTERNSHIPS

Tata Consultancy Services *Remote Intern* : (JSP and Servlets) *April 2017 - June 2017*
A web platform to connect job seekers and recruiters. Enables employers to post job openings for candidates to apply.

MINI PROJECTS

- Sentiment Analysis on twitter data set using Apache Spark Stream.
- Cache optimized Matrix multiplication. Obtained speedup of **15x** from that of naive.

SELECTED GRADUATE COURSES

Data Analytics, Scalable Systems for Data Science, Computer Architecture, Operating Systems, Theory and Practice of Computer Systems and Security, Design and Analysis of Algorithms, Blockchain and it's Applications(*Audit*)

AWARDS AND ACHIEVEMENTS

- Secured 99.65^{th} percentile in *GATE-2018*.
- Topper (Top 1%) of course Introduction to Modern Application Development(NPTEL).
- Won several prizes in inter-college web-designing, programming and debugging contests, hosted by the university.

TECHNICAL SKILLS

Programming Languages - C, C++, Java, Python, Go **Tools & Framework** - Apache Spark, Apache Giraph, Git