

Shashank Shekhar Dubey

Indian Institute of Technology Madras

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Education

Program	Institution	%/CGPA	Completion
MS by Research (CSE)	Indian Institute of Technology Madras	7.8	2021
B.Tech (IT)	KIIT University	8.34	2014
XII - CSBE	DALIMSS, Varanasi	79.00	2010
X - CSBE	DALIMSS, Varanasi	89.00	2008

Academic Projects

1. Banyan: Coordination-free Distributed Transactions over Mergeable Types April 2019 - July 2020

MS Project, Dr. KC Sivaramakrishnan

- Developed a **programming model** to enable database transactions over eventually consistent databases.
- Integrated Cassandra database using FFI** with the model and performed extensive performance related experiments.
- Used **docker containers and shell scripting** for creating test setup and perform experiments.
- Using convergent types for **automatic conflict resolution**.

2. Implementation of Scalable Supergraph Search in Large Graph Databases Aug 2017 - Dec 2017

CS6440, Distributed Computing, Prof. Dharanipragada Janakiram

- Implemented the parallel computation of supergraph search algorithm, using Spark
- Used Spark GraphX framework for graph manipulations
- Modified the algorithm to enable parallel and efficient computation of the problem.

3. IoT Based Real-Time Analysis Tool Using Spark Jan 2018 - April 2018

CS6847, Cloud Computing, Prof. Dharanipragada Janakiram

- Worked on a live project which collected sensor data (through raspberry pi), processes it and stores the result in the database.
- Responsibilities include creating a framework to collect data from HDFS, process it according to user input for analysis and storing in a database.
- Data processing and analysis was done using Spark framework.

4. Linux Privilege Escalation Attack Aug 2017 - Dec 2017

CS6570, Secure System Engineering, Prof. Chester Reberio

- Used AF_PACKET based exploit to get root access for the user.
- Exploited the problem in packet_set_ring and set_sock_opt functions in linux.
- The bug was active from 2011 to 2016 and rated as high severity.

5. Designing and Implementing a Block Cipher Jan 2018 - April 2018

CS6530, Applied Cryptography, Prof. Chester Reberio

- Designed a substitution-permutation based block cipher with the given polynomial.
- The cipher was designed for high-speed servers and would work for both hardware and software.
- Based on AES T-table approach.

Professional Experience

1. System Engineer

Aug 2014 - Jun 2017

Hewlett-Packard Enterprise R&D

- **Project : Plug-in for MS System Center to support HPE Storage devices**
 - **Development:**
 - Developed **REST APIs** to enable efficient communication between front-end and the storage devices.
 - Developed automated **Json parsing scripts** for multi-level Json objects.
 - Used **Hibernate framework** for Java based back-end development.
 - Collaborated closely with a team of twelve other members.
 - **Testing:**
 - Developed a **framework for UI testing** in Java.
 - Created **JUnit** tests for developer side testing of the back-end code.
 - Developed and executed test suit for manual testing.
 - **Others:**
 - Used JBoss and Postman for processing web requests and API development.
 - Worked with **Git** Version Control System.
 - Designed and managed the test setup including hardware machine management.
 - Worked with **agile** development model.

Publications

- **Dubey, Shashank Shekhar, K. C. Sivaramakrishnan, Thomas Gazagnaire, and Anil Madhavapeddy. "Banyan: Coordination-Free Distributed Transactions over Mergeable Types."** In Asian Symposium on Programming Languages and Systems, pp. 231-250. Springer, Cham, 2020. [Click to Verify](#)

Technical Skills and Tools

- **Languages** : { Java, OCaml }: Proficient, { C, C++, SQL }: Competent
- **Containerization and Cloud** : Docker Containers, AWS
- **Operating Systems** : Linux, Windows
- **Web technology** : Rest API, HTML
- **Other tools** : Git, Virtual Box, Eclipse, L^AT_EX

Course Work

- **Systems:** Distributed Systems, Cloud Computing
- **Computer security:** Secure Systems Engineering, Advanced Cryptography
- **Programming:** Concurrent Programming

Scholastic Achievements

- Secured **All India Rank 787** (Score - 691) in GATE CS 2017
- Awarded MS (by Research) HTRA fellowship by MHRD, Govt. of India (2018-2019)

Positions of Responsibilities

- **Teaching Assistant**, Secure Systems and Engineering (Sept - Dec 2018), IIT Madras
- **Teaching Assistant**, Introduction to Computer Networks (Jan - May 2019), IIT Madras
- **Mitr (Core)**, A student body looking after the mental health issues among the students