Aniket Pandey

Third Year Undergraduate · Mathematics and Scientific Computing

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Education Details

Indian Institute of Technology, Kanpur
B.S in Mathematics and Scientific Computing
Minor in Computer Systems
July 2016-2020 (expected)

Relevant Projects

Google Summer of Code'18 — Apr'18 - Aug'18
The FreeBSD Project — Dr. Robert Watson
- Built a self-contained Regression Test-Suite for FreeBSD's Audit Subsystem with a cross-platform support for Darwin OS and x86, ARM, Sparc64, MIPS architectures.
- Contributed 500+ test-cases for 180 auditable system calls.
- Developed an automation infrastructure for the Test-Suite, which synchronously polls on a clonable special device, /dev/auditpipe, to extract out relevant BSM tokens.
- Completed the proposed work in less than 1/3rd of total duration. Entire Test-Suite with 9000+ SLOC count was pushed to 12-CURRENT production branch. (LINK)

The University of Texas at Dallas — May'18 - Jul'18
Summer Research Intern (RTE) — Prof. Latifur Khan
- Research project on the implementation of Cross-Domain Adaptive Framework for Multistream data classification (COMC) in asynchronous data stream mining.
- Worked on performance benchmarking of an Entity extraction and Geoparser tool, CLIFF-CLAVIN, in its ability to handle multiple concurrent requests. Performance analysis was carried out on a scalable cloud environment, JetStream.

Secure Key-Value File Sharing — Jan'19 - Apr'19
Computer Systems Security — Prof. Pramod Subramanyan
- Developed an encrypted dropbox-like platform in Golang.
- Implemented transitive and anonymous collaboration using AES-CFB, HMAC, RSA based encryption and Argon2 PBKDF.

GemOS: x86 Operating System — Aug'18 - Nov'18
OS Course Project — Prof. Debadatta Mishra
- Built a Gem5 simulated x86 operating system with support for context switching, system calls, multithreading, interrupt handlers, RPC and Round-Robin Scheduling of processes.
- Developed an object-store FUSE filesystem with LRU cache.

Formal Verification of Intel's SGX — Aug'18 - Nov'18
Verifiable Secure Systems — Prof. Pramod Subramanyan
- Researched on modelling a formal verification of a password manager using Intel's Software Guard Extensions Enclave.
- Implemented the Rjindael AES-GCM 128-bit encryption.

Computational Complexity Theory — Jan'17 - Mar'17
ACA Semester Project — Prof. Rajat Mittal
- Explored the fundamental working of Turing Machine.
- Analyzed the solutions of famous NP-Complete problems.

Work Experience

Software Engineering Intern — May'19 - Jul'19
Cohesity Inc.
- Created a parser for a log-structured distributed database to tokenize Office 365 backups as key-value byte streams.
- Reconstructed the SMTP Headers from the deserialized RocksDB dump to ZeroCopyBuffers using C++ protobufs.
- Developed a library to generate PST and EML format from parsed tokens using internal file-system interface over POSIX.
- Used MFCMAPI and libpst to create BTree-on-Heap, Heap-on-Nodes and bitmap structures while generating PST.
- Feature integrated with Company's backup-indexing engine.

New York Office, IIT Kanpur — Feb'18 - Jun'18
Backend Developer Intern — Prof. Manindra Agarwal
- Worked on a scalable polyglot web application with an extensive technology stack.
- Implemented real-time status update feature in the attendance management system.
- Technologies used: DRF, Kubernetes, Elasticsearch.

Security Analyst Intern — Nov'17 - Dec'17
Lucideus Technologies
- Assessed the application's vulnerability against OWASP top 10 attacks and improved the feature security.
- Extensively used VAPT tools like Metasploit, Wireshark, Xersploit, Nessus, Maltego.
- Researched cryptographical model implementation in Network & Wireless Security, analysed WEP encryption weaknesses and exploited it using aircrack-ng tool suite.

Relevant Skills

Competent	C, C++, Golang, Python
Familiar	TypeScript, Haskell, Lua, Perl
Web Tech	Django, REST, MEAN, LAMP
Utilities	Shell Utilities, Git, Docker LaTeX, Vim

Scholastic Achievements

2014	AIR 1	KVS Junior Mathematics Olympiad
2014	AIR 244	KVPY-SA Fellowship, IISc Bangalore
2016	AIR 908	JEE Advanced 2016, IIT Guwahati

Position of Responsibility

Senior Executive, Web Team — Apr'17 - Mar'18
Stamatics Association, IIT Kanpur
- Developed and deployed the website of Stamatics in Angular.
- Dockerized the site and maintained real-time backend.

Antaragni 2018, IIT Kanpur
- Used the full MEAN Stack for a fest registration portal and its admin control panel
- Technologies Used - NodeJS, ExpressJS, Angular4, MongoDB.

Relevant Courses

Data Structures & Algorithms	Advanced Algorithms (i)	Operating Systems	Distributed Systems (i)	Computer Networks
Computer Systems Security	Computer Architecture (s)	Verifiable Systems	Probability & Statistics	Scientific Computing

(i : Ongoing Courses) | (s : Summer School)