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. — Bangalore, India

- Created a parser for a log-structured distributed database to serialize Office 365 backups to a copy-free contiguous buffer.
- Developed a library to reverse engineer exported EWS stream, tokenize SMTP headers and generate EML files from scratch.
- Integrated end-to-end workflow of parsing and recovering Outlook Emails with the company's backup indexing engine.
- Nominated as the **Best Intern Project** for providing an innovative solution to a business critical feature requirement.
- **Exposure**: C++, Golang **(2400+ SLOC)**, protobufs, RocksDB.

New York Office, IIT Kanpur May'18 - Jun'18
Backend Developer Intern — Kanpur, India

- 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 — New Delhi, India

- Assessed the application's vulnerability against OWASP top 10 attacks and improved the feature security.
- Extensively used VAPT tools like Metasploit, Wireshark, Xerosploit, 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

- Developed the fest registration portal and its admin 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)*