

# Aniket Pandey

Senior Undergraduate • Mathematics and Scientific Computing

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## Education Details

**Indian Institute of Technology, Kanpur**  
B.S, Mathematics and Scientific Computing  
Minor in Computer Systems  
JULY 2016 - Nov 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 integrated with 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**.

**Multi Level Cache Simulator** Aug'19 - Present  
github.com/aniketp/cache-sim Prof. Mainak Chaudhury

- Develop a 3-level set-associative Cache to simulate SPEC traces for various inclusion policies and eviction techniques.

**Secure Key-Value File Sharing** Jan'19 - Apr'19  
github.com/aniketp/file-share 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  
github.com/aniketp/gemOS 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** Jul'18 - Sep'18  
github.com/aniketp/sgx-pm 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.

## Relevant Courses

Advanced Computer Architecture (i)	Data Structure & Algorithms	Operating Systems	Principles of Programming Languages (i)
Designing Verifiable Secure Systems	Computer Systems Security	Computer Networks	Num. Analysis & Scientific Computing
(i : Ongoing Courses)			

## 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

- Built a secure social networking platform in LAMP Stack.
- 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

<b>Competent</b>	C, C++, Golang, Python
<b>Familiar</b>	TypeScript, Haskell, Lua, Perl
<b>Web Tech</b>	Django, REST, MEAN, LAMP
<b>Utilities</b>	Shell Utilities, Git, Docker, $\text{\LaTeX}$ , Vim

## Scholastic Achievements

2014	<b>AIR 1</b>	KVS Junior Mathematics Olympiad
2014	<b>AIR 244</b>	KVPY-SA Fellowship, IISc Bangalore
2016	<b>AIR 908</b>	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 2017, IIT Kanpur**

- Developed the fest registration portal and its admin panel.
- Technologies Used - NodeJS, ExpressJS, Angular4, MongoDB.