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Computer Science & Engineering
Indian Institute of Technology Bombay
Specialization: Computer Science & Engineering

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M.Tech.
Male
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Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2014	8.07
Undergraduate Specialization: Computer Engineering				
Graduation	Mumbai University	DMCE	2012	66.63

Fields of Interest

Web Security, Computer Networks, Functional Programming

M.Tech. Project

- Web Security - Next Generation Attacks and Defenses**

(M.Tech. Project, under the guidance of Prof. Bernard Menezes)

May'13 - till date

- Designing attacks on web applications that exploit features in the recent HTML Version 5
- Implementing next generation Clickjacking, XSS and blended attacks on the WWW
- Critically evaluating client side, server side and combined client-server side defenses
- Upgrading browser extensions for enhanced security

M.Tech. Seminar

- Secure Group Communication Over Data Networks**

(M.Tech. Seminar, under the guidance of Prof. Virendra Sule and co-guidance Prof. Bernard Menezes) Spring '13

- Studied security related issues in Group Communication
- Studied various protocols for computing and distributing the group key securely among the legitimate members
- Analysed these schemes with respect to communication and computation costs

Course Projects

- CSRF, Blind SQLi, DOM based XSS: The Evil Triangle**

(Guided by Prof. Bernard Menezes, Spring '13)

Network Security and Cryptography II

- Carried out CSRF attack on a social networking site
- Demonstrated Blind SQL Injection attack on a website
- Created a demo for DOM based XSS attack
- Studied different countermeasure techniques for the above attacks

- Design of Block Cipher and its analysis**

(Guided by Prof. Virendra Sule, Spring '13)

An Introduction to Number Theory and Cryptography

- Designed a 32-bit block encryption function, using SAGE tool
- Developed modules for Dynamic S-box Generation, Division-based Round Key Generation and Linear Mixing of the bits, using Python
- Successfully achieved avalanche effect in the encryption function and carried out stream rank test on the ciphertext generated

- Segment Routing Optimization**

(Guided by Prof. Ashwin Gumaste, ongoing)

Optical and Access Networks

- Improving the scalability of source routing
- Investigating the nodes from the perspective of SDNs, multi-domain and load-balancing, using simulation

- Interpreter for micro-Haskell**

(Guided by Prof. Amitabha Sanyal, Autumn '12)

Functional Programming

- Designed a parser for converting programs in micro-Haskell to an internal representation in Haskell
- Translation of these internal representation to G-code and interpretation of the same

- **Performance Analysis of Sort Utility** *Software Lab*
(Guided by Prof. Supratim Biswas, Autumn '12)
 - Compared performance of Optimized, Unoptimized and Manually Optimized sort code
 - Used Bash scripting alongwith Perf tool, SVN and Gnuplot
- **Nutrient Feeding Robot** *Embedded Systems*
(Guided by Prof. Kavi Arya, Autumn '12)
 - Programming in Embedded C for ATMEGA 2560 microcontroller board
 - Locates plants using sensors and sprinkles nutrients around it using circular mesh and vibrator
 - Used Rack and Pinion gear mechanism to facilitate the linear movement of mesh

BE Projects

- **Authentication using Biometric Pattern Analysis** *BE Final Year Project*
 - Used webcam for capturing multiple images of a palm, secret palm pattern only known to the user
 - Implemented image processing through a series of operations to determine the final pattern, using Matlab
- **Cricket Website** *BE Third Year Project*
 - Developed an interactive website which displays the information of the selected team and their players

M.Tech. Courses

Network Security and Cryptography II, An Introduction to Number Theory and Cryptography, Optical Networks, Functional Programming, Embedded Systems, Software Architecture, Program Analysis, Advanced Computer Architecture

Technical Skills

- **Programming Languages:** C, C++, Java, Haskell, MIPS(Assembly Language)
- **Scripting Languages:** Bash Unix Shell Scripting, Python, Gnuplot
- **Web Technologies:** HTML, Javascript
- **Operating Systems:** Linux, Windows
- **Tools:** Perf, svn, L^AT_EX
- **Databases:** MySQL, PostgreSQL, Oracle

Positions of Responsibility

- **Volunteered** in organizing an International Level Conference **ICVGIP 2012**, held at **IIT Bombay** *2012*
 - Part of the Registration team, which handled around **1000** participants
- **Teaching Assistantship, IIT Bombay:**
 - Computer Architecture *(with Prof. Bernard Menezes)*
 - Conducted lab sessions, prepared tutorials and evaluated assignments of **120** students
 - System Administrator *(with Prof. Subhadra Ramchandran)*
 - Ensured proper functioning of around **200** machines during lab hours

Extra-Curricular Activities

- Participated in the **Robotics** event at **Technitude'09**, a state level technical festival held at DMCE *2009*
- Participated in **Kresit Premier League**, a Department level Cricket Championship Tournament, at IIT Bombay *2013*
- Participated in Intra Hostel Cricket competition at Hostel-5, IIT Bombay *2013*
- **Hobbies:**
 - Playing Cricket, Badminton, Chess and Carrom
 - Reading technical e-books
 - Listening music, watching movies
 - Gymnasium
 - Playing PC games