



**Nikhil Diwakar Limaje**  
**Computer Science & Engineering**  
**Indian Institute of Technology Bombay**  
**Specialization: Computer Science & Engineering**

**123050079**  
**M.Tech.**  
**Male**  
**DOB: 23/01/1991**

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
Intermediate/+2	Maharashtra State Board	Birla College	2008	68.00
Matriculation	Maharashtra State Board	Model English High School	2006	86.13

### 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**

Network Security and Cryptography II

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

- 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**

An Introduction to Number Theory and Cryptography

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

- 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**

Optical and Access Networks

(Guided by Prof. Ashwin Gumaste, ongoing)

- 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**

Functional Programming

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

- 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
- **Architecture of Spring MVC Framework** Software Architecture  
(Guided by Prof. Rushikesh Joshi, Spring '13)
  - Analysed different components of Spring MVC Architecture
  - Developed a sample application and BPMN model for the same

## 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<sup>A</sup>T<sub>E</sub>X
- **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