Udit Jalan **09D07017**
Electrical Engineering **UG Third Year (B.Tech.)**
Indian Institute of Technology, Bombay **Male**
DOB: October 27,1991

Examination	University	Institute	Year	CPI / %
Graduation	IIT Bombay	IIT Bombay	2011	9.89
Intermediate/+2	Maharashtra State Board(HSC)	Kishinchand Chellaram College,Mumbai	2009	92.50
Matriculation	Council for Indian School Certificate Examination(ICSE)	HVB Academy,Mumbai	2007	97.57

RESEARCH INTERESTS

- **Digital and Analog Integrated Circuit Design**
  VLSI Design, Verilog/VHDL Design
- **Digital Communications**
  Coding Theory, Information Theory, Wireless Networks, Many-core Systems
- **Biomedical Instrumentation**
- **High Performance Computing**

SCHOLASTIC ACHIEVEMENTS

- **Institute Rank 1**(out of around 800 students across all Departments) (2011)
- **Only student from IIT Bombay** and among the **3 students from India** invited to the ITCSC **Winter School** on Information Theory by the **Chinese University of Hong Kong**. (2011)
- Selected for pursuing Undergraduate Research at the Homi Bhabha Centre for Science Education, Tata Institute of Fundamental Research(**TIFR)** under the **National Initiative on Undergraduate Science** (NIUS) (2010)
- Received an **AP grade(**awarded for **outstanding performance**) in **3 courses** (**Digital Systems, Analog Circuits, Differential Equations**)
- **All India Rank-129** in the Joint Entrance Examination(IIT-JEE) among 384,000 students
- **All India Rank-33(State Rank-8)** in AIEEE (All India Engineering Entrance Examination) from among 1,000,000 students (2009)
- **1st in Mumbai** at the **10th class ICSE** Board Examination (2007)
- Pursuing **Minor** in **Computer Science and Engineering**
- Was **3rd in Mumbai** at the 7th **National Cyber Olympiad** (2007)
- Among the **top 1%** students in the state at the National Standard Examination in Chemistry (NSEC) (2009)

AWARDS AND SCHOLARSHIPS

- Awarded **Institute Academic Award** for excellent academic performance (2010 & 2011)
- Recipient of the **Merit Scholarship for Professional Courses** (awarded by **CBSE**, Govt. of India) for outstanding performance in AIEEE 2009
- Recipient of **Boeing Scholarship** for outstanding academic record (2009-10)
- Was awarded **Gold Medal,** for being placed in the top 35 out of 34,000 students in Indian Physics Olympiad **(InPhO**) conducted by Homi Bhabha Centre for Science Education (2009)

RESEARCH INTERNSHIP

Long Term Wireless EEG Monitoring and Correlation with Behavior in Freely Moving Animals
Guide: Prof. Nitish Thakor, Neuroengineering and Biomedical Instrumentation Lab, Johns Hopkins University, USA (May `11-July `11)

- Designed and built a low power wireless EEG monitoring system using an already existing custom VLSI chip and commercial Nordic Transreceivers
- An accelerometer (ADXL 345) was mounted along with the VLSI chip and simultaneously video was recorded using an infra-red webcam
- All the data was processed using LABVIEW on a PC
- System verified by continuous data collection for 72 hr

KEY PROJECTS UNDERTAKEN

Reed Solomon Encoder and Decoder (Feb `11-April `11)
(Course Project, Digital Systems Lab)
Guide: Prof Sachin Patkar

- Designed and implemented a Reed-Solomon based error correction system used for forward error-correction during digital data storage and transmission using Galois Fields
- Tested and verified the encoder hardware using off-the shelf ICs on a breadboard implementation
- The decoder code was written in Verilog and synthesized using Altera Quartus II. It was emulated on a Xilinx Spartun-3E FPGA board

Digital Oscilloscope cum Signal Generator (DSO) (Aug `10-Dec '10)

- Part of a team of 4 students involved in building a low-cost wireless DSO which can generate signals upto 10MHz frequency.
- Was responsible for coding the microcontroller and generating desired signals from the signal generator IC AD9833

Mini UID (Unique Identification) for IIT-Bombay Campus
Guide: Prof. Deepak Phatak (Aug `09-Dec `09)

- The project involved building a biometric security system for the IIT- B campus using fingerprints
- Decided and successfully implemented an algorithm to extract specific minutiae from fingerprints and supply their Cartesian co-ordinates in different files for data matching
- Was the Team Leader for the project

Glove-Controlled Helicopter (Electronics Club Summer Project) (May `10-July `10)

- Designed a remote controller for a RC Helicopter using a 3-axis **Accelerometer**
- Interfaced the accelerometer to a **microcontroller** ATMega644

POSITIONS HELD

- On the **Editorial Team** of Electrical Engineering Department Magazine, Background Hum.
- **Department Academic Mentorship Program(DAMP) Mentor** :
  Mentoring second year academically weak students to realize and utilize their full potential

EXTRA-CURRICULAR ACTIVITIES

- **Best Design Award** in the F1 racing competition (design and built a remote controlled car)
- **1st prize** in **ROBOCON**(design and build a robot capable of building a pyramid by picking and placing blocks at the right position and height)
- **NSS Volunteer:** Visited small villages near Mumbai & interacted with the locals

SKILLS

- **Programming Languages**: C, C++ , JAVA, Verilog, VHDL
- **Packages**: MATLAB, SCILAB, LabVIEW, Eagle, WinAVR, NGSpice, MAGIC
- **Microcontrollers**: Atmel AVR, 8085,Microchip PIC, Arduino
- **Other Utilities**: LATEX, Apache, PHP, SQL, HTML

COURSES COVERED

Core Courses		Non Core Courses
Digital Systems	VLSI Design	Operating Systems
Analog Circuits	Digital Communication	Data Structures and Algorithms
Microprocessors	Control Systems	Discrete Structures
Communications Systems	Digital Signal Processing	Linear Algebra & Differential Equations
Signals and Systems	Electronic Devices	Data Analysis and Interpretation
A First Course in Optimization	Network Theory	Complex Analysis
Electromagnetic Waves	Power Systems	Psychology
Probability & Random Processes	Power Electronics	Economics