



**Kaushal Jain**  
**Electrical Engineering**  
**Indian Institute of Technology, Bombay**  
**Specialization: Microelectronics**

**09010005**  
**UG Third Year**  
**Male**  
**DOB: 24 Nov 1991**

Examination	University	Institute	Year	CPI/%
Graduation	IIT Bombay	IIT Bombay	2011	9.29
Intermediate/+2	Gujarat Secondary and Higher Secondary Education Board	Baroda High School, Alkapuri	2009	88.31
Matriculation	Gujarat Secondary and Higher Secondary Education Board	St. Paul's School	2007	92.92

## SCHOLASTIC ACHIEVEMENTS

- Cleared **National Talent Search Exam** conducted by the **NCERT** and awarded **scholarship** (2007)
- Qualified in **INChO**[Indian National Chemistry Olympiad] for being amongst **top 1%** in India (2009)
- Ranked at **99th Percentile** and awarded High Distinction in **Mathematics** in the International Assessment for Indian Schools by Macmillan India **consecutively** for **3 years** (2006,2007,2008)
- Awarded the **Principal's Medal** for overall **best child** in Secondary School (2007)

## INTERNSHIP

**TouchMagix Media Pvt. Ltd., Pune, India**

(May 2011-Jul 2011)

- Innovated a **3D interactive game** completely controlled by **body motions** for Windows
- Extracted meaningful data for game after **analyzing raw depth maps** given by Microsoft Kinect sensor, commonly used with **Xbox 360** gaming console
- Developed and executed **algorithms** for smooth and **natural body control** of the virtual character in the adventure 3D interactive game implemented using **Unity3D** game engine
- Experimented on the **precision** values given by **Kinect sensor** by examining the accuracy of the depth information at various distances from the sensor
- Volunteered to take **2 day tutorials** on 3D game development concepts and applying them in Unity3D for the company and was **highly appreciated** for the same

## PROJECTS

**Mindspace (MIT Media Lab Workshop 2011)**

(Jan 2011)

*A PC 3D interface with Microsoft Kinect camera (Group of 5)*

- **Segmented** out **human body** from the depth maps using CL NUI drivers for Kinect and used that information to show a **user's perspective** of a 3D image on screen using OpenGL library
- Successfully demonstrated features like zoom (in-out) and pan (left-right) based on body movements

**Karan Arjun -Mars Manouvere (TechFest 2011)**

(Dec 2010-Jan 2011)

*A grid solver robot for TechFest 2011*

- Built an **autonomous robot** that manouvers a 7\*7 grid and brings back blocks of specific color
- Also constructed a **manually controlled robot** which goes and deposits the autonomous robot
- Our 6 member team reached the **National Finals** of this contest

**Data Transfer through DPSK**

(Oct 2011-Nov 2011)

*Guide: Prof. S.N. Merchant*

- **Implemented** a DPSK modulator and demodulator using basic circuit elements on breadboard
- A wired version for **data transfer** between two computers was demonstrated using Arduino boards as interface to read the bits into files on computer

**Tracker Bot/ Bot Follower**

(May 2010-Jun 2010)

*Group Summer Project under Electronic Club of IIT Bombay*

- Built a robot that **autonomously follows** another robot based on **Image Processing**
- Developed code inputs from an overhead camera; process it using and give appropriate signals to the follower robot using serial port communication

### Response Tester (Digital Lab Project)

(Mar 2011-Apr 2011)

Guides: Prof. Sachin Patkar and Prof. Udayan Ganguly

- **Applied** basic digital logic to build a **game** which **tests your reflexes** and rates you accordingly
- Implemented Random Number Generator using Timers, worked with 7 segment displays, relays, flip flops and other basic digital blocks

### Mini UID Project (Unique Identification)

(Oct-Nov 2009)

Guide: Prof. Deepak B. Phatak

- **Coordinated** a group of **20 colleagues** for the registration part of the project
- Developed a **Graphical User Interface** using Qt 4 Designer for taking personal data (after validation) and fingerprints from biometric device for the purpose of unique identification

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## OTHER TECHNICAL INVOLVEMENTS

- Served as **Technical Secretary** of my Hostel (strength 350) (2010-2011)
- Was a member of the **TechniC** - Technical Club of IIT Bombay (2010-2011)
- Designed a **solar boat** capable of running in water on solar energy in **Techfest**. Learnt and applied the working of commonly used solar engines (in small scale robotics) (Dec 2010)
- **Volunteered** to conduct a **workshop** on Microcontrollers and a hands on Arduino session for the electrical engineering students of Charotar university of Gujarat
- **Mentored** the first year students for **Track Mania**, a robotic car making competition (Aug 2010)

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## SOFTWARE SKILLS

- **Software:** Basics of Scilab, Mathematica, Eagle, Visual C/C++, Matlab, PSpice, LTSpice
- **Languages:** C, C++, Verilog HDL, Assembly language (8085)
- **Web designing:** HTML, CSS
- **Microcontroller:** AVR Dude, WinAVR, Arduino

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## KEY COURSES

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|---|------------------------------------|
| • Data Structures and Algorithms            | • Network Theory                   |
| • Calculus, Algebra, Differential Equations | • Machines and Power Electronics   |
| • Data Analysis and Interpretation          | • Microprocessors                  |
| • Economics and Psychology                  | • Analog and Digital Circuits      |
| • Engineering Graphics and Drawing          | • Probability and Random Processes |
| • Foundations of VLSI CAD                   | • Signals and Systems              |
| • Communication Systems                     | • Electronic devices and Circuits  |

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## POSITIONS OF RESPONSIBILITY

### Core Team Member, Events, Student Alumni Relations Cell, IIT Bombay (Mar 2011-ongoing)

- Collectively **leading** a team of over **30 volunteers** for building better student alumni relations and creating a platform where students can benefit from alumni
- Successfully planned, conceptualized and executed the first ever **Student Alumni Meet** in IIT Bombay. The meet saw participation from over 100 alumni and 1000 students from IIT Bombay
- Ensured smooth organization of SARC initiatives such as interactive lectures from alumni and phonathons (telephone marathons where student volunteers connect with alumni)

### Other positions

- Served as **Vice School Captain** (2006) and **School Captain** (2007) in secondary school

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## EXTRA-CURRICULAR ACTIVITIES

- Secured highest grade (A) in Basic Mountaineering Course, conducted by **ABVIMAS** (Atal Bihari Vajpayee Institute of Mountaineering and Allied Sports) under **Indian Mountaineering Federation**
- Learnt various techniques for **rock-climbing**, **ice-craft** and **snow-craft**
- Scaled **15,700 feet** in the **Himalayas** (July 2010)
- Won 3<sup>rd</sup> Prize in **State Level Environment Quiz** competition in Gujarat