	Kritika Shahu		113070013
	Electrical Engineering		M.Tech.
	Indian Institute of Technology, Bombay		Female
	Specialization: Control & Computing		DOB: 08/01/1990

Examination	University	Institute	Year	CPI / %
Post Graduation	IIT Bombay	IIT Bombay	2012	9.21
Undergraduate Specialization: Electrical and Electronics Engineering				
Graduation	Visvesvaraya National Institute of Technology	Visvesvaraya National Institute of Technology	2011	8.96
Intermediate/+2	Maharashtra State Board	Hislop college	2007	86.17
Matriculation	Maharashtra State Board	Sandipani	2005	88.40

Areas of interest

- Embedded control systems • Process control and estimation • Modelling of dynamical systems

Academic Projects

- **M.Tech. Project: A multivehicle wireless testbed of quadcopters to test cooperative control algorithms**
  Project Guide - Prof. Debraj Chakraborty, IIT Bombay   *(Feb'12 - Present)*
  - Project aims at building swarm of quadcopters which wirelessly communicate with each other to perform cooperative tasks
  - Modelled a quadcopter in Simulink; designed and fabricated it using electronic speed controllers, brushless DC motors, inertial measurement unit (IMU) and propellers
  - Implemented a Kalman filter to estimate position and orientation of Quadcopter and to filter out noisy IMU readings
  - Future work will be to fabricate 2 quadcopters and implement cooperative control algorithms on them

- **B.Tech. Project: Underground Low tension Cable Fault locator**
  Project Guide - Prof. K.L.Thakre, VNIT Nagpur   *(Jul'10 - Apr'11)*
  - Proposed an optimal cost design of undeground cable fault locator for VNIT campus which has underground distribution cables
  - Carried out energy analysis and simulation of various impulse generation techniques
  - Designed and simulated a phase sequence detector in MATLAB Simulink.

- **B.Tech Minor Project: Analog to Digital converter and its interfacing via Parallel port**
  Project Guide - Prof. Ashwin Dhabale, VNIT Nagpur   *(Jun'09 - Aug'09)*
  - Fabricated an analog to digital converter using ADC 0809, sample and hold circuit, clock using 555 timer, level shifter using OpAmps, buffers
  - Programmed parallel port to communicate between ADC and computer

Course Projects

- **PID controller based grid navigating autonomous robot**
  Embedded control system   *(Jan'11 - Apr'11)*
  - Implemented a PID controller on ATmega16A to navigate SPARK V robot on a grid

- **Modelling and simulation of a two machine power system**
  Power system dynamics and control   *(Jan'11 - Apr'11)*
  - Modelled a system consisting of two synchronous generators connected via a transmission line using dq transformation approach; performed its stability analysis

- **Observer and controller design for a four tank system**
  State Estimation: Theory and control   *(Jul'12 - Present)*
  - Implemented prediction estimator, current state estimator and reduced order observer along with PI controller on a four tank system in MATLAB

- **Implemented IIR and FIR filters in MATLAB**
  Digital signal processing   *(Jul'11 - Dec'11)*

- Implemented IIR and FIR filter for Chebyshev and butterworth approximations

Laboratory projects: Controller implementation

- Implemented P and PI controller to control speed of servo motor between placed IR sensors
- Implemented feedback controller to maintain constant speed of robot irrespective of terrain conditions
- Designed controllers for DC motor angular position control and stepper motor control setup

Technical Skills

• Programming	:	Verilog, Arduino, C, Assembly language
		Microcontroller- Arduino, WinAvr, Code composer studio
• Tools	:	MATLAB, Simulink, Scilab, LaTeX, InduSoft Web Studio SCADA Software, Modelsim, Xilinx ISE, Labview
• Hardware Platforms	:	FPGA - Xilinx Spartan 3E
	:	Microcontrollers - Arduino, F28027 and F28069 Piccolo controlSTICK, Atmega 16, DSP-TMS320VC33
	:	Spark V robot, ArduIMU, XBee wireless module
• Operating Systems	:	Windows XP/Vista, Linux

Workshops and Industrial Trainings

- Attended a workshop on **SCADA**(Supervisory control and data acquisition) organized by **InduSoft**
- Attended a workshop on **C2000 Piccolo microcontrollers** organized by **Texas Instruments**
- Underwent an Industrial Training at **ISPAT Steel plant**, Kalmeshwar   *(Jue'10 - Jul'10)*
- Underwent an Industrial Training at **Koradi Thermal Power station**   *(May'09 - Jun'09)*

Academic achievements

- Secured an **All India rank 54** with a percentile of **99.93** amongst 72,000 students who appeared for **GATE** 2011 in electrical engineering
- Secured **rank 2** in controls and computing specialization
- Secured state rank 443 and AIR 8071 in All India engineering entrance exam (AIEEE)-2007

Courses Undertaken

- Automation and Feedback control, Embedded Control Systems, Microprocessor application in PE
- Optimal Control, Applied Linear Algebra, Non-linear Dynamical Systems, Multivariable control systems
- State estimation: Theory and application, Power system dynamics and control, Digital Signal Processing

Positions Of Responsibility

- **Academic Unit Representative of Academic Affairs (AURAA)** of Electrical Department, IIT Bombay   *(May'12 - Present)*
  - Led a team of 14 student companions to organize departmental orientation for 200 PG freshmen
  - Planned logisitics of the 3 day orientation which included scheduling events, contacting professors and arranging their talks, co-ordinating with lab in-charges and student companions to arrange lab visits
  - Organize various institute level events being member of institute PG academic council

- **Teaching Assistant at IIT Bombay**
  Responsibilities include conducting regular lab sessions, grading exams, troubleshooting hardware, explaining concepts to the students and solving their doubts
  - Experimentation and Measurement laboratory   *(May'11 - May'12)*
  - Control and Computing lab   *(Jul'12 - Present)*
- Part of the **organizing team** of AAROHI-'11,**Cultural Festival** of **VNIT Nagpur**

Extra-Curricular Activities

- **Community service**- Going to slums and **teaching underpreviliged** children who either go to school or are dropouts by being member of NGO friends for care during B.tech and Abhyasika during M.Tech
- **Sports**- Participated in Inter council cricket tournament at IIT Bombay and marathon in Institute gathering-08 at VNIT Nagpur
- **Robotics**- Participated in Eclectic at AXIS-'09,Technical festival of VNIT Nagpur
- Nominated by HOD of electrical Departemnt to attend a meeting with HRD minister Mr.Kapil Sibal at IIT Bombay