

# SIDDHARTH SHARMA

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## EDUCATION

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**University of Delhi, Netaji Subhas Institute of Technology (NSIT)**

June 2014

Bachelor of Engineering

Division of Instrumentation and Control Engineering

Overall Percentage: 62.48 %

(after dropping 12 credits as per provision of University of Delhi): 62.89 %

Bachelor's Thesis Project – Implementing Speaker Recognition Using Student's t-Mixture Modeling

BTP Score: 80.00%

## TECHNICAL SKILLS

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**Programming**

C/C++, Python, MATLAB, VHDL, Processing, Assembly, L<sup>A</sup>T<sub>E</sub>X

**Software Tools**

Eagle CAD, PSpice, Cadence Virtuoso, LabVIEW

**Hardware**

Arduino, RaspberryPi, Atmel AVR, ARM Cortex M3 (with TI StellarisWare),

PCB Design, Oscilloscopes

**Operating Systems**

Linux (Ubuntu and Raspbian), Windows

## WORK EXPERIENCE

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**The Smart Cube**

*Analyst*

November 2014–Present

*Noida, Uttar Pradesh, India*

- Working in the business research and data analytics firm as part of the team responsible for aiding decision making for primarily Blue Chip Consulting Firms
- Awarded the “Kudos Award” in February 2015, for outstanding performance across projects for a US-based consulting client

## INTERNSHIPS AND RESEARCH POSITIONS

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**Viterbi School of Engineering, University of Southern California**

*Summer Research Intern*

June 2013–August 2013

*Los Angeles, CA*

- Worked in the BioRC research group led by Dr. Alice C. Parker in the Ming Hsieh Department of Electrical Engineering; the research group targets to mimic the human brain's neural structure through analog VLSI circuits
- Developed software and algorithms to automate the synthesis of analog neural network circuits, to mimic the neural structure of C.Elegans worm
- Presented poster titled “Automatic Neuromorphic Circuit Connection Software” at Ming Hsieh Department of Electrical Engineering

**mLabs Research**

*Research Intern*

September 2012–May 2013

*New Delhi, IN*

- Designed Arduino and RaspberryPi-based circuits, integrating devices like TFT touch display, 802.11 module, ADCs and analog switch matrix microchips by employing bus communication protocols such as SPI and I2C
- Designed multi-layer PCBs using EagleCAD
- Developed modules for memristor characterization using Arduino
- Worked in the three-member prototype development team of Bit-by-Bit (B3) – a product that enables everyone to design Internet of Things enabled hardware; B3 provides a fully automated data acquisition and analysis system, along with an arbitrary waveform generator, using a RaspberryPi-based board; the concept is patented and supported by Microsoft Ventures in London

**Centre for Electronics Design and Technology, NSIT**

*Student Researcher*

December 2011–July 2012

*New Delhi, IN*

- Learned PCB design and fabrication
- Worked on various Arduino-based hardware projects (please see “Projects Undertaken”)

**Bosch Chassis Systems, Gurgaon Plant**

*Summer Trainee*

June 2011–July 2011

*New Delhi, IN*

- Worked on project titled “Implementation of Poka-Yoke Using Electronic Sensors” – design and implementation of a PLC panel for Poka-Yoke on riveting machine in the drum-brake house of the manufacturing plant
- Wrote review paper about the project that won First Position at Kriti – Paper Presentation Competition during Innovision 2012, the annual technical fest of Netaji Subhas Institute of Technology
- Learned about the various manufacturing processes employed in the plant, various quality assurance techniques such as Poka-Yoke and Six-Sigma, and how they are employed in the manufacturing plant

## PROJECTS UNDERTAKEN

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### **Solar Position Algorithm (SPA) on RaspberryPi**

August 2014

*Mentor: Dr. Smriti Srivastava, Dean, Undergraduate Studies, NSIT*

- Designed the PCB for a standalone RaspberryPi-based device for the implementation of SPA developed by NREL, US Department of Energy; the device makes SPA calculations, such as solar zenith angle and azimuth angle, at remote locations

### **Bachelor’s Thesis Project: Implementing speaker recognition using Student’s t-Mixture Model**

*Mentor: Dr. Smriti Srivastava, Dean, Undergraduate Studies, NSIT*

January 2014–June 2014

- Developed a robust, text independent speaker recognition system modelled on Student’s t-mixtures; Defended thesis in front of panel comprising of faculty members of Division of Instrumentation and Control Engineering, NSIT

### **“Pac-Man” on Digital Storage Oscilloscope**

July 2012

*Laboratory: CEDT, NSIT*

- Developed single player “Pac-Man” on a Digital Storage Oscilloscope (DSO) as part of Atmel Oscilloscope Design Challenge, CEDT, NSIT, New Delhi
- Established graphic display in X-Y mode of DSO using two R-2R ladder network based digital to analog converters, and gameplay through a basic controller interfaced using Arduino

### **Non-Invasive Heart Rate Monitor**

April 2012–June 2012

*Laboratory: CEDT, NSIT*

- Developed the heart-rate monitor using IR sensor by employing the principles of Plethysmography; displayed ECG graph using Processing

### **“Snake” game on an 8x8 LED Matrix**

March 2012

*Laboratory: CEDT, NSIT*

- Developed the game “Snake”, played through a basic controller interfaced with Arduino

### **PCB Design and Fabrication**

December 2011

*Laboratory: CEDT, NSIT*

- Designed and fabricated the PCB for a 5VDC voltage-regulated power supply with maximum current drive of 1A using Eagle CAD software
- Provided fold-back current limiting for short-circuit protection

## LEADERSHIP EXPERIENCE

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### **Crescendo – Music Society of NSIT**

June 2012–May 2013

*President*

- Previously an inactive society, brought significant improvement in activity and presence by appointing an administrative core team of 6 members, out of a total of over 50 members in the society
- Successful organization of Crescendo Eve in September 2012, with 15 musical performances of varied genres by society members; Crescendo Eve is now an annual event at NSIT
- Successful stint at Rendezvous 2013, Annual Cultural Fest of IIT, Delhi, with 2nd position in Solo Western Vocals, 3rd position in Solo Instrumentals and participation in Group Western Vocals

## EXTRA-CURRICULAR ACTIVITIES

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- Playing the bass guitar; familiar with musical staff notation
- Member of college basketball team during first two years of college