

# 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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| <b>Programming</b>       | C/C++, Python, MATLAB, VHDL, Processing, Assembly, L <sup>A</sup> T <sub>E</sub> X                   |
| <b>Software Tools</b>    | Eagle CAD, PSpice, Cadence Virtuoso, LabVIEW   |
| <b>Hardware</b>          | Arduino, RaspberryPi, Atmel AVR, ARM Cortex M3 (with TI StellarisWare),<br>PCB Design, Oscilloscopes |
| <b>Operating Systems</b> | Linux (Ubuntu and Raspbian), Windows   |

## WORK EXPERIENCE

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### The Smart Cube

November 2014–Present

*Analyst*

*Noida, Uttar Pradesh, India*

- Working in the business research and data analytics firm as part of the team responsible for aiding Blue-chip Consulting Firms with IT and technology-related advisory
- Included projects that aimed to gauge the feasibility of migration from a mainframe environment to distributed servers for a Fortune 50 company (for which, was awarded the Kudos Award in February 2015) and to provide insights to a Fortune 500 company for the integration of Internet of Things to develop products that help monitor employee hygiene and health through gamification, employee absenteeism, etc.

## INTERNSHIPS AND RESEARCH POSITIONS

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

June 2013–August 2013

*Summer Research Intern*

*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

September 2012–May 2013

*Research Intern*

*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

December 2011–July 2012

*Student Researcher*

*New Delhi, IN*

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

- 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

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**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

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**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

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**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