CHIRAG NAGPAL

Army Institute of Technology ◇ Pune-15, Maharashtra, India
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EDUCATION

University of Pune, India 2012 - 2016
Bachelor of Engineering (Computer Engineering)
Courses: Digital Electronics, Data Structures, Microprocessor Architecture, Computer Organisation, Microprocessor Interfacing Techniques, Mathematics - I, II, III
Overall Percentage: 83.28% GPA: 3.98/4.00 (upto 2nd semester)
First Class With Distinction, 1st Position in College

Delhi Public School, Jaipur 2010 - 2012
AISSCE (CBSE, Class XII)
Physics, Chemistry, Mathematics, Multimedia and Web Technology
Percentage: 94%

St. Joseph's Convent School, Pathankot 2008 - 2010
AISSE (CBSE, Class X)
Science, Mathematics and English
GPA: 10

EXPERIENCE

Netaji Subhas Institute of Technology, New Delhi Dec 2013 - Jan 2014
Mentor, Texas Instruments Centre For Embedded Product Design

- Professionally mentored second and third year students from leading universities in India on Texas Instruments ICs and Microcontrollers.
- Trained students on software packages like CadSoft EAGLE, TI Code Composer Studio.
- Guided students with embedded system projects on TI MSP430 and ARM Cortex M4.

Indian Institute of Technology, Delhi July 2013

- Attended a workshop on 'Creativity and Innovation' after qualifying the National Creativity Aptitude Test.
- Aim was to develop creative thinking and enhance achievement motivation.

PROJECTS

Wireless Environemnt Sensing Network with IoT extension Mar - Apr 2014
ARM Cortex A8 (BeagleBone Black), MSP430

- Developed an environment sensing node with LM35, DHT11, LDR interaced to MSP430 and XBee.
- Coordinator node was developed on ARM A8 based BeagleBone Black serving as an Intenet of Things server.
- Frontend was developed as a webpage, served by coordinator using processing.js with backend for RS232 protocol implemented in Python.
- Work was featured on leading electronics blog, **Hack A Day** and **Dangerous Protoypes** and stood 1st in 'Amalgam' college project competition, 2014
http://hackaday.com/2014/04/06/hackaday-links-april-6-2014/
http://dangerousprototypes.com/2014/03/31/beaglebone-black-and-msp430-based-wireless-sensing/

GPIO Access Through Linux User Space Nov - Dec 2013
ARM Cortex A8 (BeagleBone Black)

- Implemented a novel technique of GPIO access using the Linux mmap() system function and /dev/mem.
- Studied the architecture of the TI AM3359 ARM A8 Controller with special regard to GPIO addressing.
- Achieved a GPIO toggle rate of over 2MHz as compared to the standard 3kHz speed.
- Work was featured on leading electronics blog, **Hack A Day**.
http://hackaday.com/2013/12/07/speeding-up-beaglebone-black-gpio-a-thousand-times/

PC controlled Laser Pointer Dec 2013
ATmega328 (Arduino)

- Interfaced servo motors to the ATmega328 (Arduino) using PWM signals.
- Established RS-232 serial communication between PC and Atmega328.
- Wrote a Linux compatible Python script to read mouse coordinates and send them using serial over USB.
- Work was featured on leading electronics blog, **Dangerous Prototypes**.
  http://dangerousprototypes.com/2013/12/18/laser-pointer-controlled-with-a-pc-mouse/01111

Mobile Camera Robot Sep - Oct 2013
ARM Cortex A8 (BeagleBone Black)

- Implemented a Web Server using LIGHTTPD and Wi-Fi with static IP on ARM Cortex A8 running Angstrom Linux.
- Established a 640x480 resolution video stream from a webcam through a simple PHP based web page.
- Interfaced an HMC5883 Magnetometer using I^2C, and L293DNE Motor Driver for direction & control.

Morse Code Generator Jun - Jul 2013
TI MSP430

- Designed the PCB on CadSoft EAGLE, and developed it using Toner-Transfer method.
- Interfaced legacy PS/2 Keyboard, 16x2 Character LCD to the MSP430.
- Utilised the TI Code Composer Studio to program the controller in Embedded C.

TECHNICAL SKILLS

Programming Languages	C/C++, Python, Java, Shell Scripting, VHDL, R, Latex
Platforms	x86, Arduino, MSP430, ARM Cortex M4, ARM Cortex A8
Operating Systems	Unix, Linux, Embedded Linux, Windows
Tools	EAGLE, Eclipse IDE, Xilinx ISE, GIMP

ONLINE COURSEWORK

Johns Hopkins University Jan - Feb 2013
Computing for Data Analysis

- Grade: 71/100
- Programming in R, creating data graphics, writing functions and creating R packages.

AWARDS AND ACHIEVEMENTS

- 1^{st} position in 'Amalgam', alumni sponsored project comepetition, AIT Pune, 2014
- Selected for MIT Media Lab DIY Workshop, India, 2014(could not attend due to University Exams)
- Sir Ratan Tata Memorial Scholarship, for standing 1^{st} in Computer Department, 2013.
- Merit Scholarships by Indian Army for excellence in academics in the years 2013, 2012 & 2010.
- National level, 5^{th} Position, 'National Creativity Aptitude Test', 2013
- Ranked among top 1.7% students in AIEEE, 2012.
- Winner Intra-College 'India Quiz', 2012.
- Selected for INSPIRE (Innovation in Science Pursuit for Inspired Reaearch) program at University of Rajasthan, 2010.

EXTRA CURRICULAR

- Open Source enthusiast and contributed to the Angstrom Distribution of Linux for Embedded Devices via GitHub.
- Board Member, College Magazine, 'Srijna'.
- Team Member of College Quiz and Debate Club.
- Hobbies include Horse Riding & Swimming.