

# **Bastin Joseph**

Final Year B-Tech Electrical Engineering (Major) IIT Hyderabad, INDIA Mail ID: <u>ee11b006@iith.ac.in</u>

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Sex	IMale	Nationality	Indian
Age	:21	Batch	:2011-2015

### Academic Details

Degree	Year	University/Board	CGPA/%
B.Tech	2014	Indian Institute of Technology Hyderabad	9.4/10
Intermediate(+2)	2011	Central Board Of Secondary Education	92.8%
Matriculation	2009	Central Board Of Secondary Education	96.2%

# **Publications-Accepted**

- 1. "A Low Complexity On-Chip ECG Data Compression Methodology Targeting Remote Health-Care Applications", *36th Annual International Conference of the IEEE Engineering in Medicine and Biology Society*, Chicago, USA, 26-30 August, 2014. (Accepted)
- 2. "An Onchip Robust real-time Automated Non-invasive cardiac Remote Health Monitoring Methodology", 41st Annual International Scientific Conference on Computing in Cardiology (CinC 2014), Cambridge, Massachusetts, USA, 7-10 September, 2014. (Accepted)

Internships and Work Experience

- 1. Summer Internship at Qualcomm Hyderabad
   May 2012- July 2012

   Interim Engineering Intern: Developed a tool using Perl to automate the log analysis for LTE performance testing of modem.
- Summer Research Internship at Indian Institute of Technology Hyderabad. *Guide: Dr.Amit Acharyya* Proposed and implemented low complexity architecture for on-chip compression of ECG signals targeting remote healthcare.

# **Ongoing Research Projects**

1. Self-Healing electronics *Guide : Dr.Amit Acharyya* 

Honors Project, IIT Hyderabad

The project aims at coming up with a self-healing method which is both controllable and regenerative. The problem is approached from an electronics perspective where self-healing gives circuits extended life.

- 2. Beamforming for a CMUT array Guide : Dr.Siva Rama Krishna Vanjari Academic Project, IIT Hyderabad Design a digital circuit to clock each element of a CMUT array to focus the generated ultrasound waves at the desired focal points.
- 3. Wavelet vaguelette reconstruction for photo acoustic tomography

Guide : Dr.Sumohana Channappayya Academic Project, IIT Hyderabad Reconstruction of image and reduction of the noise in image by applying wavelet vaguelette reconstruction method for photo acoustic tomography.

# 4. Electromagnetic cloaking

Guide: Dr.Zafar Ali Khan

Academic Project, IIT Hyderabad Study and model the electromagnetic cloaking effects of metamaterials and propose an improvement in the cloaking of objects for visible light

### **Academic Research Projects**

- 1. Computationally Efficient Generalized Algorithm for n-D Determinant Computation. Guide : Dr.Amit Acharyya Academic Project, IIT Hyderabad Proposed an algorithm to reduce the number of computations for finding the determinant of an NxN matrix. Implemented the algorithm in Matlab and implemented the architecture in VHDL.
- 2. Low complexity architecture for computing square root of a number. Guide: Dr.Amit Acharyya Academic Project, IIT Hyderabad Proposed an algorithm and architecture for computing square root of a number modifying the existing Newton-Raphson method. This was targeted at hardware implementation.

### 3. Analysis and Implementation of LDPC codes for data transmission Guide: Dr.Zafar Ali Khan Academic Project, IIT Hyderabad

The project focused on studying the performance of Low Density Parity Check (LPDC) codes and implementing it in Matlab using existing encoding and iterative decoding algorithms.

### 4. Circuit solver using Image Processing

Academic Project, IIT Hyderabad

Guide: Dr. Sumohana channappayya Proposed an algorithm to analyze a circuit by processing the image of the circuit i.e. calculating current, impedance, etc. parameters using simple image processing techniques and implemented it in Matlab.

### 5. Design of pulse meter

Guide: Dr. Ashudeb Dutta Academic Project, IIT Hyderabad Made a pulse meter to measure the pulse of a patient. This was implemented using infrared sensor and the signal was processed on chip using a simple microprocessor.

### 6. Design of 8-bit microprocessor

Guide: Dr. Surya Sankar Dan Designed a custom 8-bit microprocessor in VHDL. Implemented the basic arithmetic operations and register related operations using 8 bit commands.

### Academic Project, IIT Hyderabad

# 7. Quadra-pod

### **Robotics** Club

Club Project, IIT Hyderabad

Designed a four legged walking robot using servos and Arduino board.

# 8. Propeller Clock

### **Robotics** Club

# Club Project, IIT Hyderabad

Made a propeller clock using which works on the principle of persistence of vision. The clock was programmed using Arduino board.

### Skills

Languages Known	: English, Malayalam, Hindi			
Computer Skills				
Platforms	: Windows, Linux			
Languages	: C, C++, VHDL, Perl, Python, Embedded C, Intel 8085(Assembly),			
	Linear Assembly			
Tools	: Matlab, LAMMPS, Synopsis Design Compiler, Modelsim, Cadence RTL			
	Compiler, Sage Math, Scilab, Xilinx ISE, PSpice.			

### Achievements

- Recipient of Academic Excellence Award from the institute for the year 2012.
- Selected for Indian Academy of Science (IAS) Fellowship 2014.
- Secured All India Rank of 2722 rank in IIT-JEE 2011 (99.5 Percentile)
- Secured All India Rank of 2812 in All India Engineering Entrance Examination (AIEEE) 2011 (99.75 percentile).
- Secured 24<sup>th</sup> rank in State Level Engineering Entrance Exam 2011
- Secured 11<sup>th</sup> rank in Cochin University Entrance Examination (CUSAT) 2011

# Extra-curricular activities

- Core Member of Robotics Club of IIT Hyderabad
- Core Member of Electronics Club of IIT Hyderabad
- Volunteered for ELAN 2011 Cultural festival of IIT Hyderabad
- National Sports Organization (NSO) Badminton player

### Declaration

I hereby declare that above information is true to the best of my knowledge and spirit. **Bastin Joseph**