

SARAGADAM RAJA VENKATA VISHWANATH

Indian Institute of Technology Madras

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EDUCATION

Indian Institute of Technology Madras

2010 - 2014

- B.Tech in Electrical Engineering with minor degree in Operations Research.
- Cumulative Grade Point Average: 9.37/10 after 7 semesters.
- Positioned first in a class of 123 students.
- Completed 12 extra credits in graduate level courses towards an Honors degree.

Narayana Junior College, Hyderabad

2008 - 2010

- 12th standard (Board of Intermediate Education, Andhra Pradesh).
- Aggregate: 98.4%.
- Positioned 9th in the state of Andhra Pradesh among 500,000 students who wrote the exam.
- South zone topper among all the children of Airports Authority of India employees.

Chinmaya Vidyalaya, Hyderabad

2010

- 10th standard (Central Board of Secondary Education, India).
- Aggregate: 92.0%.
- Silver medal for topping in mathematics.

SCHOLASTIC ACHIEVEMENTS

- Secured 155th rank in IIT Joint Entrance Examination 2010 among 470,000 students.
- Recipient of the *Shri V Rajagopalan Memorial award* for outstanding performance in 3rd and 4th semesters in electrical engineering.
- Recipient of the *M Sankaraih and M Saradah scholarship* for outstanding performance in second year.
- Recipient of the CBSE merit scholarship for professional studies 2010 - 2014.
- Qualified for the DAAD WISE scholarship 2013 for internship at TU Bremen.
- Qualified for the S N Bose scholars program 2013 for internship at University of Wisconsin Madison.
- Selected for the *Kishore Vaigyanik Prothsaahan Yojana* (KVPY) scholars program 2010 for higher studies in basic sciences, awarded by Department of Science and Technology, Government of India.
- Qualified for first round of the Physics and Chemistry Olympiads 2010.

PROJECTS AND ARTICLES

Accessible Reading material

May 2011 - December 2012

- Developed a low cost semi autonomous assistive device for tactiling simple images in pre-literacy and early literacy books for visually impaired children under the guidance of *Dr. Anil Prabhakar, Dr. Sujatha Sreenivasan and Dr. Nitin Chandrachoodan*.
- Project was funded by the Center for Industrial Consultancy and Sponsored Research, IIT Madras under the Innovative Students Project.
- Patent pending. (*Patent Application No. 4091/CHE/ 2011 "Tactograph" Date of Entry 28th November 2011 in the names of Indian Institute of Technology - Madras and Chetana Charitable Trust*).

Canny edge detection using Python and SCIPY

September 2012

- Published an article on implementing the canny edge detector in python in "Linux For You", a famous open source magazine in India.

SPICE backend

August - November 2011

- Wrote a backend for SPICE in C for simulating linear devices as part of Computer Aided Design for Electrical Engineering under *Dr. Harishankar Ramachandran*.

Image segmentation using graph partitioning

August - November 2012

- Worked on segmenting objects in images using random walk models and community detection as a part of *Introduction to social networks* course under the guidance of *Dr. Andrew Thangaraj and Dr. Krishna Jagannathan*.
- Code hosted at github.com/vishwa91/grimp.

Designing fully differential amplifier

April - May 2013

- Designed a fully differential amplifier with high gain bandwidth as part of Analog IC design course under the guidance of *Dr. S Aniruddhan*.

Analog spectrum analyzer

April - May 2013

- Made an analog spectrum analyzer based on mixer as part of Analog circuits lab.
- Spectrum analyzer could detect sinusoids distinctly for frequencies between 500Hz and 5kHz.

Analyzing motion blur (Final year thesis)

August 2013 - Now

- Guide: *Dr. A. N. Rajagopalan*, IIT Madras.
- Working on deblurring images using motion sensors on a mobile platform and estimating depth from one blurred and one non-blurred image.

Digit recognizer using HTK toolkit

November 2013 - Now

- Made an automated digit recognizer using HTK toolkit as a part of *Speech signal processing* course.

Detecting features in glacial ice shelf images

September 2013 - Now

- Working on detecting features corresponding to crevices in glacial ice shelf images of the Antarctic circle in collaboration with Vishnu Nandan(pursuing PhD in remote sensing) from AWI¹, Germany.

INTERNSHIP

Sasken Communication Technologies, Chennai, India

May - July 2012

- Ported Boot 2 Gecko, Mozilla's web based mobile operating system to Huawei U8150.
- Compiled Gecko render engine and Linux kernel to ARM platform.

Maschinenfabrik Reinhausen GmbH, Regensburg, Germany

May - July 2013

- Wrote XML validation script for Bachmann platform.
- Ported tap changing monitoring system to Bachmann platform.
- Created emulation module for voltages and temperatures for software modules.
- Created automation system for documentation of software modules.

CONFERENCES, COMPETITIONS AND WORKSHOPS

- Represented school at National Science Congress, held at Chidambaram, Tamil Nadu in January 2007.
- Represented school at *Ignited Minds*, organized by Indian Institute of Chemical Technology, held at Hyderabad, Andhra Pradesh in 2006. Won the second prize in the competition.
- Presented a poster on *Controlling a 2 degrees of freedom pantograph plotter* in NaCoMM² 2011 held at IIT Madras.
- Conducted workshop on *Making toys from trash* held at IIT Madras as part of National Service Scheme.
- Participated in Android Development workshop held at IIT Madras in collaboration with Ministry of Human Resources Department, Government of India.
- Won the third prize in IEEE AIYEHUM³ 2012.

¹Alfred Wegener Institut. Helmholtz zentrum fur polar und meeresforschung

²National Conference on Mechanisms and Machines organized by International Federations for the Promotion of Mechanism and Machine Science

³All India Young Engineers HUManitarian challenge, held at Bangalore, Karnataka

SKILLS

- **Computer languages:**

- Proficient at coding in C, C++, Python and Matlab.
- Working knowledge of VHDL, Verilog, Assembly(8051, ARM), CUDA and PLC ladder logic.

- **Computer tools and platforms:**

- Proficient at Microsoft Office, Autodesk 3ds Max, Spice opus and L^AT_EX.
- Working knowledge of AutoCAD, Adobe Flash, Xilinx IDE, keil μ Vision, Modelsim and Bachmann PLC platform.

- **Operating systems:** Microsoft Windows, Linux(Debian, Red hat, Arch).

RELEVANT COURSES AND LABS

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|--|---|
| - Networks and systems | - Computer Aided Designing for electrical engineering |
| - Analog and digital signal processing | - Digital circuits laboratory |
| - Introduction to communication networks | - Analog circuits laboratory |
| - Introduction to data structures and algorithms | - Digital communication ⁴ |
| - Communication systems | - Communication networks ⁴ |
| - Analog IC design | - Digital IC design ⁴ |
| - Complex variables and transform techniques | - Speech signal processing ⁴ |
| - Probability, statistics and stochastic processes | - Advanced EE lab ⁴ |

CO-CURRICULAR AND EXTRA-CURRICULAR ACTIVITIES

- Blogging⁵
 - Wrote articles on image processing in python and scipy, 3D animation, embedded systems and personal thoughts.
- Fine arts⁶
 - Participated actively in inter hostel fine arts competitions. Won fourth prize in inter hostel painting competition.
 - Sketched as a part of the team which won first prize in inter hostel creative writing.
 - Won 3rd prize in the Horlicks Whizz kids poster making competition 2007.
- Computer animation⁶
 - Worked on polygon and spline modeling in Autodesk 3ds max.
 - Worked on robotics event videos for Shaastra⁷ 2011.

MEMBERSHIPS AND POSITIONS OF RESPONSIBILITY

- IEEE student member of Signal Processing society.
- Coordinator for design, Shaastra⁷ 2011 and Saarang⁸ 2012.
- Hostel ambassador for Sustainability Network 2011.
- Coordinator for Electronics workshop, Shaastra⁷ 2013.
- Project representative for *Toys from trash* group in National Service Scheme, IIT Madras from 2011 to 2012.
- Advisory committee member for National Service Scheme, IIT Madras from 2012 to 2014.
- Member of Avanti Fellows for teaching high school subjects to financially backward children.

⁴Courses in the current semester

⁵cyroforge.wordpress.com

⁶vishwa91.github.io/animation

⁷Annual technical festival of IIT Madras

⁸Annual cultural festival of IIT Madras