

ASWIN RAGHAV NIRMALESWARAN

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EDUCATION

Cornell University, School of Engineering, Ithaca, NY

Master of Engineering (M.Eng) in Biomedical Engineering,

Expected May 2017

University of Texas at Arlington, School of Engineering, Arlington, TX

Master of Science in Biomedical Engineering,

Cumulative GPA: 3.667/4

Jan 2016 - May 2016
(Transferred to Cornell)

Anna University, SSN College of Engineering, Chennai, India

Bachelor of Engineering in Biomedical Engineering,

Cumulative GPA: 7.4/10

Aug 2011- May 2015

PATENTS

MULTISYRINGE MODEL- JECTABLE

India Patent Application 5847/CHE/2014

ELECTROMAGNETIC VASCULAR FORCEPS

India Patent Application 5848/CHE/2014

PROJECTS

- **Segmentation of Skin Lesions using Combined Adaptive Thresholding and Connected Component Analysis** (3rd best project award-during the course 'Computer Vision' at Cornell)
Developed a novel algorithm (from a training dataset of 900 clinical dermoscopic images) to efficiently detect skin lesions.
Skills and Expertise: Computer Vision (2D Color clustering, Adaptive Snake, Otsu's method) - using VisionX & C, MATLAB.
- **Automated Anatomical Landmark Detection in 3D Chest CT images** (Current project)
Design, develop, and evaluate algorithms that will reliably detect unique locations including sternal notch & the junction between the heart and aorta. Second stage of algorithm will be to identify the desired candidates.
Skills and Expertise: Image Processing using VisionX & C
- **Observation and Identification of Erythrocyte Cell Membrane Vibrations for Differential Diagnosis**
Invented a Diagnostic technology involving Cell vibration (due to thermal excitation) tracking using Kalman filter.
Skills and Expertise: Image Sequence(Video) and Signal Processing using Matlab, SIMULINK; Fluorescent Microscopy.
- **Design and 3D Printing of Tracheal Scaffold**
Development of Scaffold which aids in Directional Cell growth & suture-less implantation
Skills and Expertise: DS- SOLIDWORKS, Replicator-G, Image-J.
- **Design of Multisyringe Model- JECTABLE**
A multi-injection pen which features reduced needle-pricking, Less manufacturing cost, Increased shelf life of drugs.
Skills and Expertise: CATIA v5
- **Automation and Redesigning of Vascular Clamps/Forceps**
Electromagnetic forcep which is electronically controlled by the surgeon
Skills and Expertise: CATIA, ARDUINO- Atmega 328 microcontroller, PCB design- H bridge & ULN2004 circuits
- **Portable Device for the treatment of Postpartum Hemorrhage**
An automated electronic device that induces blood coagulation non-surgically in PPH patients.
Skills and Expertise: Electromagnetic coil & circuit design, Charged particle theory, Hematology.

HONORS AND AWARDS

- Ranked amongst one of the top 5 finalist in GE EDISON CHALLENGE 2013, Bangalore, India.
- Ranked among one of the top 20 venture proposals in ASSOCIATION OF BIOTECHNOLOGY LED ENTERPRISES- BEST 2014, Bangalore, India.
- Elected Speaker, Best 5 student papers in IEEE GLOBAL HUMANITARIAN TECHNOLOGY CONFERENCE 2014 - October 2014 at San Jose, California.
- Ranked amongst the top 150 semi-finalist teams in "BIG-C COMPETITION 2014" by Livestrong Foundation.
- Awarded best paper in National level Technical Conference on Bioengineering 2014 at Bharath University, India.

RELATED EXPERIENCE

HEALTHCARE TECHNOLOGY INNOVATION CENTER, Chennai, India

May- December 2015

Biomedical/Electrical Engineer Intern

- **WEARABLE design**- using Freescale K53 MCU (Arm Cortex M4-100Mhz) & IAR Workbench
- Estimated the relationship between core body temperature & body's surface parameters- Regression of collected dataset from 500 people(appx). #Algorithm development
- Body Fat percentage estimation using Body Impedance. #Biosignal Acquisition using NI- ELVIS 2, NI- DAQ

SSN RESEARCH CENTER, Chennai, India

May-December 2015

Research Assistant

Design, control and automation of custom temperature controller setup (involving LABVIEW, myRIO and circuit design) for Crystal Growth Research; #Signal Conditioning #Feature extraction #PID controller design

THE MEDICARE SCIENTIFIC SUPPLIES, Chennai, India

Sept 2012- Jan 2015

Design and Development Engineer- Part time

Design & automation of optical filter setup in Professional gel documentation system named **Gelstan 4X/8X Chemi**

SAKTHI HOSPITAL & RESEARCH CENTER, Chennai, India

Oct- Nov 2014

Biomedical Engineer Intern

Descriptive Study on Post-maternity; for designing an automated portable device to treat Postpartum Hemorrhage.

HELIX CORPORATION, Bangalore, India

September 2012 (1 week)

Biomedical Engineer Intern

Testing and calibration of Bio-medical testing equipment

OTHER EXPERIENCE

CORNELL UNIVERSITY, Ithaca, NY

Lab Assistant

PHYS 2213: Electromagnetism

August 2016- Dec 2016

PHYS 2214: Oscillations, Waves, and Quantum Physics

Current position

PHYS 1112: Mechanics & Heat

Current position

GEEKYCROC, Chennai, India

May 2015- Present

Founder- www.geekycroc.com

- College life experiences turned into a working E-commerce Business involving Textbooks, Consulting and material-supply for Higher education, Food review, Travel agency etc only for College Students;
- Also formed a network and logistics division; convinced clients for partnership; Annexed local businesses as a part.

BHUMI, a Non-governmental Organization, India

May 2013- June 2015

HR Manager & Teaching Volunteer

Management of events and coordinating volunteers for teaching students of class 6,7,8.

OTHER SPECIALIZED SKILLS

Languages

C,Java, JSP- Basics, Javascript, SQL, HTML-CSS, Python, Matlab, LABVIEW

Tools

Adobe Photoshop, Multisim, Office, SIMULINK, Adobe Lightroom, Adobe Aftereffects, FL Studio, Audition, SOLIDWORKS

Languages

Fluent in Tamil and Hindi