LAKSH BHATIA

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EDUCATION

Aalto University, Helsinki *2016 - 2017*
M.Sc.(Tech) Major in Embedded Systems and Minor in Innovation and Enterprenurship

Technische Universität Berlin *2015 - 2016*
M.Sc.(Tech) Major in Embedded Systems and Minor in Innovation and Enterprenurship

Birla Institute of Technology and Science, Pilani *2011 - 2015*
B.E.(Hons.) Electrical & Electonics Engineering

Maharashtra State Board for Higher Secondary Education *2009 - 2011*
Ratanbai Walbai Junior Muncipal College of Science

Maharashtra State Board for Higher Secondary Education *Till 2009*
S.E.S. High School and Junior College,Thane

PROFESSIONAL EXPERIENCE

Research Assistant Oct 2017 - Present
Adaptive Emergent Systems Engineering Group
Imperial College London

· Working on a project sponsored by NEC Japan.

Postgraduate Thesis Feb 2017 - Sep 2017
Distributed Cyber-Physical Systems with UAVs
Advisor- Dr.David Boyle,Research Fellow, Imperial College London

· Designing a closed loop system for the collection of data from embedded devices in remote location with UAVs and recharging those devices using the UAV.

Airfy GmBH Feb 2016 - Jul 2016
Embedded Systems Intern *Berlin, Germany*

· Designed new IoT devices using LoRa for communication and STM32 and Nrf51 microcontrollers.

Undergraduate Thesis Aug 2014 - Dec 2014
Development and Deployment of a Permanent Wireless Sensor Network Testbed
Advisor- Prof.K.R.Anupama,Associate Professor, BITS Pilani KK Birla Goa Campus

· Designed a permanent wireless sensor network testbed which will be deployed campus. This testbed contains a network of TelosB motes and the server is hosted by a cluster of raspberrypis.

Reliance Communications Limited May 2013 - Jul 2013
Summer Intern *Mumbai, India*

· Graphical User Interface for budget Estimation and forecasting while laying down Optical fiber cables.

Professional assistant for the course Digital Design Aug 2014 - Dec 2014

· Assisted the Professor in conducting the labs for Digital Design

PUBLICATIONS

Development of Test-bed Set-up for Underwater Acoustic Communication and Sensor Network

Sarang Dhongdi, K R Anupama, Mayank Joneja and Laksh Bhatia

National Symposium on Acoustics, NSA 2015, Oct. 7-9, 2015

PROJECTS

Implementing a SHA3-256 cyrptographic system Sep 2016 - Oct 2016

· Implemented a SHA3-256 cryptographic system in C.

Dynaway Jan 2016 - Jul 2016

· A unique bicyle navigation system that is powered by dynamo and displays the navigation with LEDs.

Augmented Perception May 2016 - Aug 2016

-Dr.-Ing. Vlado Handziski, TU Berlin, Germany

· Collaborative path planning and navigation with a turtlebot and an overload Kinect.

Distributed Wi-Fi Sniffer Nov 2015 - Mar 2016

-Dr.-Ing. Vlado Handziski, TU Berlin, Germany

· Designing a Distributed Wi-Fi Sniffer to monitor the state of the environment to get a more realistic estimate while performing experiments.

Marauder's Map Nov 2015 - Mar 2016

-Dr.-Ing. Vlado Handziski, TU Berlin, Germany

· Designing an Indoor Localisation Based system on the existing Twist Infrastructure using weighted centroid and RSSI fingerprinting.

FlappyRL - A Reinforcement Learning system for Flappy Bird Oct 2016 - Dec 2016

· Q-Learning and MCTS based implementations for Flappy Bird implemented using OpenAI Gym.

Custom Wireless Sensor Network node Jan 2014 - May 2014

-Prof.K.R.Anupama, Associate Professor, BITS Pilani, India

· Developed a custom mote (based on MSP430 and XBEE) in EAGLE CAD along with the necessary platform files for TinyOS and subsequently tested prototype printed circuit boards for deployment in academic testbed scenarios.

MAC Protocol for Underwater Acoustic Sensor Networks Jan 2014 - May 2014

-Mr.Sarang Dhongdi, Lecturer, BITS Pilani, India

· Deployed a miniature test bed of Simple Acoustic Modems interfaced with TelosB motes running TinyOS to analyze the performance of simple TDMA based MAC protocol and time synchronization.

A Protocol Stack for Condition Based Monitoring of Pipelines Aug 2013 - Dec 2013

-Prof.K.R.Anupama, Associate Professor, BITS Pilani, India

· Designed a time-synchronization based complete protocol stack on TinyOS platform using a test-bed of TelosB motes(funded by Gas Authority of India Limited).

Power Saving System for Domestic Applications Jan 2013 - April 2013
-Prof.K.R.Anupama, Associate Professor, BITS Pilani, India

· Designed an 8051 based system (using Embedded C) for any connected wall power socket with an in-built feature of on-off time based weekly scheduling. This setup was later simulated in Proteus for system verification.

Implementation of the MIPS Architecture Jan 2013 - Apr 2013
-Dr Biju Raveendran, Assistant Professor, BITS Pilani, India

· Implemented the MIPS Architecture in a single cycle and multicycle implementation using the XIlinx ISE design tools and ModelSim.

Smart Air Conditioning System for a conference room Jan 2013 - April 2013
-Prof.K.R.Anupama, Associate Professor, BITS Pilani, India

· Implemented an assembly language based design using a servo motor based smart ac system for a conference room to control the vents of a air conditioner based on the number of people in the room.

Multi Cycle MIPS Architecture in VLSI design Jan 2013 - April 2013
-Pravin Mane, Lecturer, BITS Pilani, India

· Implemented a multi cycle MIPS Architecture using RTL compiler and the Encounter Place and Route and Virtuoso Tools of the Cadence Design Suite.

Pocket Headphone Amplifier for Guitarists Aug 2014 - Dec 2014

· Designed a pocket Headphone amplifier based on the Chu Moy amplifier circuit with 3 channel tone control and effects using a Digital Signal Processor for the guitar input.

Android Application to provide an interface for milk dispensers Jan 2014 - Mar 2014

· Designed an Android application to communicate with the embedded controller in a milk dispenser over the serial interface.

Wearable emoticon display Jan 2015 - Mar 2015

· Designed an android application for a wearable emoticon display created by interfacing a Nokia 6610 LCD and a Raspberry Pi.

TECHNICAL STRENGTHS

Programming Languages	C, C++, nesC, Python, Android Development, Verilog, JavaScript, HTML, CSS.
Tools	TinyOS, RiotOS, LoRaWan, Robot Operating System(ROS), MQTT, Cooja Simulator, EagleCAD, Flask, Proteus, Matlab.
Hardware Used	STM32L1, Arduino, Raspberry Pi, TelosB, Xbee, Turtlebot, TI CC2520 and 430 SOCs, CC3200, SX127x.

OTHER ACHIEVEMENTS AND ACTIVITIES

- Best Idea, Venture Campus , TU Berlin
- Best Enterprenual Team , Summer School , Karlsruhe Institute of Technology
- Finalist for Faculty4Makers Challenge, TU Berlin
- Co-Founder and mentor of Quark Summer Technical Projects
- Qualified for Texas Instruments Innovation and design challenge 2015

- Selected for the MIT Media Labs Workshop India
- Coordinator for Workshops at Quark 2014,technical festival of BITS Pilani Goa Campus
- Curator of the IG-Nobel conference held during Quark.