

SHIVAM MAHESH POTDAR

Electrical and Electronics Engineering Senior (NITK Surathkal, India)

Computer Architecture and Digital Design Enthusiast

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EXPERIENCE

Indian Institute of Science (IISc), Bengaluru

Research Assistant, [Computer Aided Design Lab](#)

Jun '20 -Present

For undergraduate thesis, project in the area of Machine Learning Acceleration tool-chain and hardware for REDEFINE, a massively parallel and re-configurable silicon core technology.

Free and Open Source Silicon (FOSSi) Foundation

Student Developer (Under [Google Summer of Code \(GSoc\) 2020](#))

May '20 -Present

[Link](#)

Working on the project titled "Integration of WARP-V with OpenPiton". WARP-V is a highly parameterised and configurable CPU core written in the upcoming TL-Verilog standard and OpenPiton is Princeton Parallel Group's highly scalable manycore framework. (Funded by Google)

Dept of Computer Science and Engineering, IIT Bombay

Project Intern, [Smart Energy Informatics Lab](#)

Jul '19 -Present

Implementation of an IoT based Smart Brown Box for smart power distribution management to prevent blackouts, and convert them to brownouts. Implemented on NodeMCU using various sensors.

Department of Electrical Engineering, IIT Bombay

Summer Research Intern, [Wadhwani Electronics Lab](#)

May '19 -Jul '19

Construction, verification and testing of digital circuits on Altera MAX V based PLD using VHDL

EDUCATION

B. Tech. in Electrical and Electronics Engineering

National Institute of Technology, Karnataka, Surathkal

April 2021 (Expected)

8.59 GPA

Class 12th

Kendriya Vidyalaya, Vayusena Nagar, Nagpur

May 2017

97.6%

Class 10th

Kendriya Vidyalaya, 9BRD AFS, Pune

May 2015

10 CGPA (94.8%)

PUBLICATIONS

- Shivam Mahesh Potdar, Pruthviraj Umesh and K V Gangadharan (January 2020). "Conceptualization and Design of Remotely Accessible Hardware Interface (RAHI) Lab". In: *Evolution in Computational Intelligence (FICTA 2020)*, Springer Advances in Intelligent Systems and Computing (AISC) Series (available online from September 2020).

AREAS OF INTEREST

Computer Architecture

RISC-V

CPU Design and Verification

Microarchitecture

RTL Design

FPGA / ASIC Design and Verification

Open-Source Silicon

Hardware for ML Acceleration and HPC

SKILLS & TOOLS

(System)Verilog / VHDL

Python

HLS

Bash Shell

Linux OS

C/C++

Xilinx Vivado / ISE

Intel Quartus Prime

RISC Assembly

Embedded C

RPi/AVR/ESP/TI MSPs

SPICE

Tensorflow

MATLAB

Simulink

ACHIEVEMENTS



[Google Summer of Code, 2020](#)

\$3000 stipend from Google for open-source development for [FOSSi Foundation](#)



[A. Richard Newton Young Student Fellow](#)

Design and Automation Conference (DAC), 2020



[Winner, Coding Hackathon 2k18](#)

Organised by IoT Club, NMAMIT Nitte. Won a cash prize of ₹10000



[Nagpur District Topper, CBSE Class 12th](#)

97.6%. Top 1.5% all over India. First Rank in KV Sangathan Jabalpur Region, ₹5000 cash prize from CBSE



[Represented Kendriya Vidyalaya Sangathan at JNNMEE-2016](#)

National Level Science Exhibition organised by NCERT at BIEC Bengaluru, Dec. 2016

LANGUAGES

English, Hindi, Marathi

PROJECTS

Security System in Verilog

📅 Jun '20

🔗 [Link](#)

- Verilog module for phone keypad scanner, and controller with FSM, ROM and RAM.

Balancing Bot

📅 Dec '19-Feb '20

- Biped balancing bot with LQR controller, for e-Yantra Robotics Competition (IITB) 2020
- Embedded Systems, PCB Design, Control Systems

8-bit Microcontroller implementation on FPGA

📅 Aug '19-Feb '20

🔗 [Link](#)

- Starting with basic building blocks of an MCU viz ALU, registers, RAM etc., add features incrementally.
- VHDL, FPGA, Computer Architecture

Remote-Triggered Hardware Learning Platform

📅 Jan '19-Apr '19

- Project for the [RT-Labs, Centre for System Design, NITK](#)
- Platform for students to learn Python coding for electronics with Raspberry Pi on actual device with visual feedback without the need of physical access to the device.
- RPi, Django2, Python

Thirsty Crow Robot

📅 Dec '18-Feb '19

🔗 [Link](#)

- For e-Yantra Robotics Competition 2018, IIT Bombay
- Line following bot with path planning on hexagonal grid arena with OpenGL animations of the movement using Aruco markers
- ATMEGA2560, OpenGL, OpenCV, PCB Design, Path Planning

Cloud Tracking using Satellite Imagery

📅 Jan '19-Apr '19

🔗 [Link](#)

- Mini Project with [Dr Yashwant Kashyap](#), EEE Department, NITK
- Processing of coloured and cloud optical thickness satellite imagery over a time period and predicting the movement of clouds
- MATLAB, SVM classification, Image processing

Remotely Monitored Weather and Intrusion Detection

📅 Jun '18-Jul '18

🔗 [Link](#)

- Collecting data from temperature and humidity sensor and PIR sensor (intrusion), and publishing it to a website
- Arduino, ESP8266, digital sensors interfacing, basic web development, HTTP requests, serial communication, ThingSpeak API, AT commands

RELEVANT COURSES

- [Pipelining RISC-V with Transaction-Level Verilog, Udemy](#)
- [Developing HPC Accelerators using Xilinx FPGAs, ICS2020](#)
- [Computer Organisation and Architecture, NITK \(CSE\)](#)
- [VLSI Design, NITK \(ECE\)](#)
- [Digital System Design, NITK \(EEE\)](#)
- [Microprocessors, NITK \(EEE\)](#)
- [Embedded System Design, NITK \(ECE\)](#)
- [Machine Learning, NITK \(EEE\)](#)
- [Applications of Machine Learning Techniques to Medical Image Analysis](#)
- [Sensors and Actuators, SWAYAM \(NPTEL\)](#)
- [Digital Signal Processing, NITK \(EEE\)](#)
- [Python for Everybody, Coursera](#)
- [Python Data Structures, Coursera](#)
- [DrishTI Microcontrollers, Texas Instruments](#)

ACTIVITIES

- Community Member, [RISC-V International](#)
- Computer Architecture and Embedded Systems Sub-SIG Head, ACM NITK
- Student Coordinator, Embedded Systems and Robotics Lab at NITK (e-Yantra Lab Setup Initiative, IIT Bombay)
- Delivered a talk on Research Internships to junior students
- Mentored 30 first year students of NITK in Embedded Systems and IoT, Summer of '19
- Executive Member, [ACM NITK Student Chapter](#) and [Flying and Robotics Club NITK](#)
- Product Manager, [IRIS NITK](#)

REFEREES

Dr. Yashwant Kashyap

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✉ Assistant Professor,
Department of Electrical and Electronics Engineering,
National Institute of Technology
Karnataka, Surathkal