

# Atharva Rajendra Karpate

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## EDUCATION

### Purdue University

West Lafayette, IN

*Master of Science in Electrical and Computer Engineering*

2021-2023

**Specialization** – Computer Engineering

### Shri Ramdeobaba College of Engineering and Management

Nagpur

*Bachelor of Engineering in Electronics and Communication Engineering*

2016-2020

**CGPA** - 9.32/10.0

## EXPERIENCE

### Accenture Solutions Pvt. Ltd.

Hyderabad

*Associate Software Engineer*

Feb 2021 – July 2021

**Project:** PTC Technologies

- Worked in the embedded software development team which offers Internet of Things for clients.
- Connecting individual sensor systems to get a real-time overview of the manufacturing operations.

### NeWS Lab, Indian Institute of Technology

Hyderabad

*Research Intern*

Jan 2020 – Jan 2021

**Project:** Privacy and Energy efficiency in BMaaS Clouds

**Guide:** Dr. Bheemarjuna Reddy Tamma & Dr Praveen Tammana, CSE Department, IIT-H

- Worked in a team of 3 to develop a machine learning-based non-invasive solution for utilization detection of bare metal servers in BMaaS cloud.
- Developed and deployed OpenBMC firmware instances for sensor data aggregation. Deployed customized firmware on Portwell Neptune Alpha Kit.
- Carried out performance testing of the proposed system on the MLperf Inference Benchmarks suite.

### NeWS Lab, Indian Institute of Technology

Hyderabad

*IASc-INSa-NASI Summer Research Fellow*

May - July 2019

**Project:** Development of firmware update mechanism for IoT devices using DNS and IPv6

**Guide:** Dr. Bheemarjuna Reddy Tamma, CSE Department, IIT-H

- Worked in a team of 3 to develop a firmware update mechanism for resource-constrained IoT devices using OX RR type of the DNS on an IPv6-only Network.
- Deployed testbed using BIND9 and carried out testing using DNSperf benchmarking tool on Timeout, NXDomain and NoNameServer exceptions.

## PROJECTS

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### Industrial Fire Localization

- Worked on the design and development of fire detection and localisation system using WSN for industrial environments.
- Investigated communication protocols and network topologies in WSNs and proposed three wireless node designs with varying sensor count, detection and localisation efficiencies.
- Developed a visualisation tool for real-time monitoring and fire mitigation using Grafana.

### E-yantra: Pollinator-Bee

- Worked in a team of 4 to develop a UAV-based bio-mimicking system for the bee-pollination process.
- Implemented PID algorithm for Indoor Localization of a Pluto-drone using Python and Whycon library of ROS.
- Developed a path-planning and color detection node for drone movement using OpenCV.

## PUBLICATION

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- Maruthi S Inukonda, Vaibhav S Chauhan, **Atharva R Karpate**, Bheemarjuna Reddy Tamma, Sparsh Mittal, Praveen Tammana, 'NASCENT: A Non-invasive Solution for Detecting Utilization of Servers in Bare-metal Cloud' - The Journal of Systems Architecture [**Under Review**]
- **Atharva R Karpate**, Piyush P Agarwal, Ashlesh A Jaiswal, 'Indoor Fire Localisation using WSN and Fire Map Generation for Industrial Environment' - 3rd International Conference on Electronic Systems, Signal Processing and Computing Technologies ICESC-2020
- Technical Report - **Atharva R Karpate**, Bheemarjuna Reddy Tamma, 'Development of firmware update mechanism for IoT devices using DNS and IPv6' – IASc-SRF.  
URL - <http://reports.ias.ac.in/report/19301/development-of-firmware-update-mechanism-for-iot-devices-using-dns-and-ipv6>
- Monika R Seth, **Atharva R Karpate**, Abhinav Bathula, "Effects of Internet Addiction on Workplace Productivity: With a special reference to Alacrity in Nagpur", Helix-The Scientific Explorer Vol. 8(6): DOI 10.29042/2018-4226-4229.

## AWARDS & HONORS

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- Recipient of the **IASc-INSANA-SASI Summer Research Fellowship** for the year 2019 for the research work completed at NeWS Lab, IIT Hyderabad.
- Received **Certificate of Merit** and scholarship of ₹10,000 for academic excellence in the session 2018 – 2019, ranking 2<sup>nd</sup> in batch of 140 students.
- All India- 1<sup>st</sup> Position for **Swades-18'**, Social Entrepreneurship business plan competition conducted under Consortium- 18' by E-cell, VNIT, Nagpur. Received support and ₹15,000 in funding from Youpreneur to further validate the Idea.
- All India-Finalist for **E-yantra- eYRC 18'**, National Robotics Competition for the theme Pollinator Bee conducted by ERTS Lab, IIT Bombay.

## TECHNICAL PROFICIENCY

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- **Programming Languages:** C, C++, Python, MATLAB, Octave.
- **Technologies/Tools:** OpenBMC, MAAS, BIND9, Docker, LXDM, QEMU, Grafana, ROS, Git, OpenCV, Wireshark, Arduino