

# YASHAS ND

+91 82771 17857 ♦ ndyashas@gmail.com  
ndyashas.github.io

## EXPERIENCE

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**Centre for Cloud Computing and Big Data, PES University**  
*Junior Research Fellow*

August 2020 – Present  
Bengaluru, India

- Designing hardware accelerators on FPGAs.

**CYRAN AI Solutions - Indian Institute of Technology, Delhi**  
*Intern*

January 2020 – June 2020  
Delhi, India

- Worked on various applications powered by various ML architectures such as GANs, CNNs.
- Worked on software development for BUDDHI Kit, India's first AI DIY Kit.

**PES University**  
*Teaching Assistant*

August 2019 – December 2019  
Bengaluru, India

- Worked as a TA for the course "Digital Design and Computer Organization".
- Assistance during the lab sessions.

**NVM Research Lab - Indian Institute of Technology, Delhi**  
*Summer Intern*

May 2019 – July 2019  
Delhi, India

- Investigated image related, and audio-related ML techniques using GANs, CNNs, and RNNs.
- Gained in-depth experience in ML frameworks such as TensorFlow and PyTorch.

**Centre for Cloud computing and Big Data**  
*Research Intern*

February 2018 – December 2019  
Bengaluru, India

- Hardware design for accelerated matrix multiplication on FPGAs.
- Utilization of elastic circuits techniques for handling critical path delays.
- Full flow from High-level logic description till final FPGA configuration and testing.

**NextGen Earth Labs (NGEL)**  
*Project Intern*

December 2018 – May 2019  
Bengaluru, India

- Developed cloud-based back-end to manage data logging and broadcasting control messages to nodes.
- Developed front end to visualize air quality data in different areas.

**PACE PES**  
*Software development Intern*

August 2017 - August 2018  
Bengaluru, India

- Developed back-end for analyzing data procured from the electric vehicle.
- Development of software for vehicle control through multiple interfaces.

## EDUCATION

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**PES University**  
*Undergraduate*

August 2016 - Present  
Bengaluru, India

**Specialization in *Systems and Core Computing*.**

Majors in Computer Science and Engineering. CGPA : **9.44 / 10**

**Manasarovar Pushkarini Vidyashram Pre-University College**  
*Pre-University study (12th grade)*

August 2014 - May 2016  
Mysuru, India

Focus on Computer Science, Physics, Chemistry, and Mathematics. Score: 97%.

Score: 10/10 CGPA

## PENDING PATENTS

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- “*Elastic Pipelines for Data Processing. Application number 201941028170*” filed at the Indian patent office.  
**Inventors:** Reetinder Sidhu, Vaibhav BV, **Yashas Nagavane Dattatreya**, Rachana Aithal KR.
- “*A system and method for real-time correction of collision-free flight paths of flying objects. Application number 201941047692*” filed at the Indian patent office.  
**Inventors:** Antony Louis Piriya Kumar Douglas, **Yashas Nagavane Dattatreya**, Vivek Partal, Devashish Satyanarayan Vaishnav.

## PAPERS AND PRESENTATIONS

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- “*Hardware Accelerated Matrix Multiplication using a 400 MHz Systolic Array on a CPU+FPGA Platform.*” by Reetinder Sidhu, **Yashas ND**, Vishal Rao, Rachana Aithal, Vennela Katasani, Sneha Rao GR, and Vishal S. Poster presentation at 33rd VLSI Design Conference 2020. Awarded the **best poster paper award in the user design track category**.

## PROJECTS

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- **Dhwani** An *English* to *Indic* language phonetic conversion engine.
- **Digital Design for Regular expression matching on FPGAs and implementation on PYNQ ZYNQ board:** Designed circuit in Xilinx Vivado and tested using IPython framework on Jupyter Notebook.
- **Third-I-v2.0:** Implemented a user-space file system on Linux using FUSE. Further, implemented extended functionalities such as soft-links and hard-links in operations.
- **Compiler for generating object code from parsing JavaScript code:** Built using “lex” and “yacc” tools, implemented iterative backend optimizer for object code optimization.
- **Demonstrative CPU design:** Designed various parts such as ALU, Register File, Program Counter, and Control Unit. Integrated all of these and tested for functional correctness of the design.

## ACHIEVEMENTS

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- Recipient of *Prof. CNR Rao Merit Scholarship* from PES University from the past three years.
- Recipient of “Distinction award” for securing First class with Distinction in multiple semesters from PES University.
- **Ranked 290 out of 170,000** candidates in State level Engineering competitive Exam (KCET 2016).
- Completed PACE Project of *Personal Urban Mobility Access*, organized by General Motors, PACE Global Annual Forum, Warren, Michigan; July 2018.