

Amitabh Yadav

M.Sc. COMPUTER ENGINEERING (*pursuing*)

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ABOUT ME

As a student of Computer Engineering at TU Delft, I learn computer architectures, VLSI and Quantum Computing. My research interest is in designing architectures and writing firmware for Computing Platforms and Quantum Computers.

I am youthful yet very mature and possess the inquisitiveness to learn. Meticulous engineering graduate, I am passionate about applied research. I am cheerful, team-player, disciplined, hard-working and I never give up. My hobbies are photography, travel, reading, writing and occasionally, pencil sketching.

EDUCATION

University	Specialisation	Year	CGPA/%
Delft University of Technology	<i>M.Sc. Computer Engineering</i>	2017-present	-
University of Petroleum and Energy Studies	<i>B.Tech. Electronics Engineering</i>	2013-17	3.09/4.00
St. Fidelis College (Sr. Sec. School)	<i>Physics, Chemistry, Maths, Computer Science</i>	2012	85.5%
St. Aloysius College (High School)	<i>English, Maths, Science, Social Science</i>	2010	9.4/10.0

AREAS OF INTEREST

Processor / ASIC Design, Firmware / VHDL, Digital DAQ, Parallel Programming (OpenCL/CUDA), VLSI (Design and Test), Quantum Computing (Algorithms, Error Correction, Cryptography) and Space/Defence Electronics.

EXPERIENCE

- **Delft Aerospace Rocket Engineering** (Stratos III) Delft, Netherland
Electronics Integration and Test for Stratos-III *October 2017 - Present*
Stratos-III Sounding Rocket is intended to break the current European altitude record (32.3km) for student built sound rockets.
- **CERN** (EP-ADE-ID, ATLAS Experiment) Geneva, Switzerland
Guide: Dr. Carlos Solans Sanchez, Staff Scientist, CERN. *June - August 2017*
Inner Tracker (ITk) Firmware Development for Phase II Upgrade of ATLAS Experiment. The firmware integrates read-out and routing of data from Silicon Pixel Detectors (FE-I4), IP-Bus (RJ-45) and Gigabit Transceiver (GBT) communication protocol on the optical link.
- **Bhabha Atomic Research Center** (DA&PS, Mod Lab) Mumbai, India
Guide: Dr. S.K. Lalwani, Scientific Officer (H), BARC. *June - July 2017*
Developed Compression and De-Noising Algorithms for A-, B- and C- Scan Ultrasonic Data using Information Theory and Coding, DCT/DFT and Wavelet Transforms for application in NDT of Metals/Materials, achieving up to 91.01% and 75.37% of lossless compression for A- and C-Scan Data, respectively.
- **Oil and Natural Gas Corporation Ltd.** (GEOPIC Hq) Dehradun, India
Guide: Mr. A.K. Dohare, Superintending Engineer, ONGC. *June - July 2016*
Study of Computer Networks, OSI Model, and Data Storage and Analysis at Geodata Processing & Interpretation Centre (GEOPIC), ONGC Ltd.

NATIONAL/INTERNATIONAL COMPETITIONS

- **Lockheed Martin Roll-ON/Roll-OFF Design Challenge** (Lockheed Martin Inc. and TASL Ltd.) *August 2015 - May 2017*
Dr. Kamal Bansal (Dean), Dr. Sudhir Joshi (Asst. Professor)
As Chief Electronics in Phase-II (Critical Design Phase) of the competition by Lockheed Martin, I worked on detailed technical design of Aerial Surveillance Systems using drones, Automation of Aircraft Payload and Communication Systems.

Excelled with national rank 1, securing research grant by the company (\$25,000 & \$40,000) to manufacture the prototype payload structure compatible with C-130J Super Hercules Military Aircraft. The payload is intended for disaster relief operations by the Indian Air Force (IAF) and National Disaster Response Force (NDRF).

- **ESRA Intercollegiate Rocket Engineering Competition 2017** (ESRA, SpaceX, Virgin Galactic etc.)
Dr. Ugur Guven (Prof.), Dr. Gurunadh Velidi (Asst. Prof.) August 2016 - May 2017
I served as the Avionics and Payload Electronics Engineer for the Sounding Rocket 'Kalam' in Team Garud (Rocketry Division of UPES). 'Kalam' stands 2.8 meters tall, a Solid COTS-propellant based sounding rocket that carries a scientific payload weighing 4 kgs. Team Garud has been the only Indian Student team to successfully launch a rocket at IREC, USA.
- **CANSAT Competition 2017** (American Astronautical Society, NASA, Lockheed Martin etc.)
Dr. Ugur Guven (Prof.), Dr. Zozimus Labana (Asst. Prof.) August 2016 - June 2017
Team mentor and technical advisor to Team Astral. We achieved International Rank#1 outranking 90+ participating university teams from more than 10 countries. With a cumulative score of 98.31%, Team Astral maintained the 1st place in the world in the Phase-1 PDR, Phase-2 CDR and Phase-3 Launch.
- **CANSAT Competition 2016** (American Astronautical Society, NASA, Naval Research Laboratory etc.)
Dr. Ugur Guven (Prof.), Dr. Zozimus Labana (Asst. Prof.) August 2015 - June 2016
As Team Leader (Electronics) of Team Astral, I lead the development and integration of Sensor Subsystems (using AVR MCU), Communication Systems (ZigBee and ESP8266) and Ground Control Station (GUI). We achieved an International Rank of 4th out of 72 teams worldwide and 1st in Europe, Asia and Asia-Pacific. The 2016 mission statement required to design and build a space-type system, *Mars Glider* to demonstrate the operations (Data Acquisition and Telemetry) during a Sounding Rocket launch.
- **CANSAT Competition 2015** (American Astronautical Society, NASA, Naval Research Laboratory etc.)
Dr. Ugur Guven (Prof.), Dr. Pawan K. Nanduri (Asst. Prof.) August 2014 - June 2015
As Electronics Team Member of Team Astral, I developed the Sensor Subsystem (Arduino MCU) and Ground Control Station (MATLAB based GUI). The *Auto-Gyro Recovery Imager* was launched (at Burkett, Texas) on 11th June on a sounding rocket and achieved an International Rank 13th out of 43 teams worldwide.

PROJECTS

1. OpenCL implementation of Smith-Waterman Algorithm for Protein/DNA Sequencing.
2. Modelling and Simulation of a 16-bit Microcontroller in Xilinx/VHDL. [BACHELORS THESIS PROJECT]
3. Embedded Hardware development of AVR-MCU based Audio-Signal Morse Code Encoding/Decoding.
4. Early Warning System using Wireless Sensor Networks for Landslide Forecasting.
5. Wireless Sensor Network based Patient Monitoring and Tracking System.
6. Project Geo-Rover: Digital mapping of a geographical area using Land robots and UAVs.

PUBLICATIONS/PATENTS

- Yadav, Amitabh, et al. "Wireless Sensor Network Based Patient Health Monitoring and Tracking System", in *Advances in Intelligent Systems and Computing*, Springer, 479, (2016): pp.903-917.
- Amitabh Yadav, Vivek Kaundal, Abhishek Sharma et al. "WSN Based Patient Health Monitoring and Tracking System". [INDIAN PATENT Application No.# 201611039333] [PATENT FILED]

TECHNICAL SKILLS

Programming (C/C++, Java, VHDL, Embedded C, CUDA, OpenCL, Python)

Tools (Matlab, Altium, Vivado, Xilinx ISE, AVR Studio, L^AT_EX, Adobe Photoshop).

CO-/EXTRA CURRICULAR ACTIVITIES

- IEEE Member and IEEE Computer Society Member.
- EEMCS, TU Delft Blogger.
- Discipline Committee Head, College of Engineering Studies (CoES), UPES 2016-17.
- TOEFL iBT – 111/120 (R:28, L:29, S:26, W:28)
- Student Volunteer at the 10th Uttarakhand State Science and Technology Congress 2015-16.

I declare that the details above are correct and true to the best of my knowledge.

- Amitabh Yadav