Amitabh Yadav

M.Sc. COMPUTER ENGINEERING *(pursuing)*
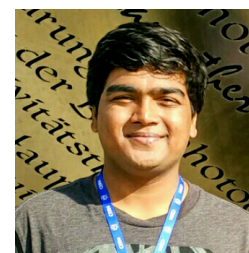
Address: 246-F, Stieltjesweg, 2628CK Delft, Netherlands

M. +31 61 78 89 335   LinkedIn.: amitabhydv
E. amitabhydv@gmail.com   WWW: amitabhyadav.com

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, disciplined, team-player, 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	*M.Sc. Computer Engineering*	2017-present	NA
University of Petroleum and Energy Studies	*B.Tech. Electronics Engineering*	2013-17	3.09/4.00
St. Fidelis College (Sr. Sec. School)	*Physics,Chemistry,Maths,Computer Science*	2012	85.5%
St. Aloysius College (High School)	*English, Maths, Science, Social Science*	2010	9.4/10.0

AREAS OF INTEREST

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

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]

EXPERIENCE

- **Delft Aerospace Rocket Engineering** (Stratos III)   Delft, Netherland
  Electronics Integration and Test for Stratos-III   *October 2017 - Present*

  I am working on PCB Design using Altium Designer 18 and DAQ Firmware Development on ARM Cortex M3 Microcontroller. DARE is the rocketry Dream Team of TU Delft and 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 (F/W) Development for Phase II Upgrade of ATLAS Inner Detector.
  I developed a front-end DAQ firmware integrating a Tri-mode Ethernet-based IPBus F/W based on UDP/IP for front-end data/status monitoring, an 8b/10b encoding based Rx and Tx Core F/W to communicate with the FE-I4 Silicon Pixel Detector Chip at 160Mbps and a back-end Gigabit Transreceiver (GBT) communication protocol. In the process, I also developed a data_routing entity called E_Link Bank. (Report)
  I participated in the CERN Webfest and helped design a Machine-Learning optimised adaptable quiz application for iOS devices by using Ionic and Javascript.
  Further, I attended the talks during CERN OpenLab visits to Open Systems Zurich (Internet Security), ETH Zurich (Machine Learning Applications) and Google Zurich (Machine Learning Models in 'Smart Reply' in Gmail).

Contd...

- **Bhabha Atomic Research Center** (DA&PS, Mod Lab)   Mumbai, India
  Guide: Dr. S.K. Lalwani, Scientific Officer (H), BARC.   *June - July 2017*
  Bhabha Atomic Research Centre (BARC) is India's premier nuclear research facility based in Trombay, Mumbai (INDIA). I developed Compression and De-Noising Algorithms for A-, B- and C- Scan Ultrasonic Scan Data for application in Non-Destructie testing of Materials.
  I completed my work well before time achieving lossless data compression up to 92% in A-Scan data, and 75.37% in C-Scan data using standard information coding algorithms of Huffman Coding, Shannon-Fano Coding and Arithmetic Coding.(E.g. for comparison, WinZip achieved compression of 78% in the best configuration on the same C-Scan data.) Further, I studied Lempel Ziv Compression as Case Study. I also studied and analysed the compression rations and noise reduction patterns in lossy compression algorithms including 1-D and 2-D DCT, DFT and Wavelet Transform.

- **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.)
  Dr. Kamal Bansal (Dean), Dr. Sudhir Joshi (Asst. Professor)   *August 2015 - May 2017*
  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, we secured a 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).
  Further, the team was recognized nationally through national newspapers such as The Tribune, The Pioneer, The Hindu, Indian Defense Review etc. "**The UPES team, "Tesseract", beat IIT Delhi, DTU and BITS, Pilani, to emerge as the national winner of the Lockheed Martin aerospace design challenge.**" (Tribune March 22, 2016)

- **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 Chief 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-propellent 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. (Results)

- **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.
  "**Indian Students present an epic CanSat System at Global Aerospace Competition in Texas, and it left NASA absolutely stunned.**" -Business Insider, July 19, 2016

- **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 a Member Electronics group 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

- OpenCL implementation of Smith-Waterman Algorithm for Protein/DNA Sequencing. (CUDA provided)

- Modelling and Simulation of a 16-bit Microcontroller in Xilinx/VHDL. [BACHELORS THESIS PROJECT]

- Embedded Hardware development of AVR-MCU based Audio-Signal Morse Code Encoding/Decoding.

- Early Warning System using Wireless Sensor Networks for Landslide Forecasting: A University-Funded research project (Rs. 25,000), the project idea aims at designing an 'early warning system' using IoT based communication infrastructure in populated areas in Himalayan Mountain Range that not only receive heavy rainfall but are also prone to shocks of earthquakes.

- Wireless Sensor Network based Patient Monitoring and Tracking System: University-Funded Research Project (Rs. 20,000), the project was awarded as top 10 research projects of 2015 in UPES. Rank – 8th.

- Project Geo-Rover: Digital mapping of a geographical area using Land robots and UAVs. The prototype was put on Exhibition in the International SPE Fest at UPES in February 2015 for college students and international delegates.

TECHNICAL SKILLS

Programming (C/C++, Java, VHDL, Embedded C, CUDA, OpenCL, Python)
Tools (Matlab, Altium, Vivado, Xilinx ISE,ModelSim, Cadence Virtuoso Layout, Raspberry Pi3, Atmel Studio, LATEX, Adobe Photoshop, IBM-QuantumExperience).
Operating System (Microsoft Windows and (GNU) Linux (Raspbian and Ubuntu))

CO-/EXTRA- CURRICULAR ACTIVITIES

1. IEEE Member and IEEE Computer Society Member. (3 years)
2. TOEFL iBT – 111/120 (R:28, L:29, S:26, W:28)
3. Bachelor's Class Rank - 5/56.
4. Class Xth (High School) Topper at St. Aloysius College, Pilibhit.
5. EEMCS, TU Delft Blogger. (Blog)
6. Discipline Committee Head, College of Engineering Studies (CoES), UPES 2016-17.
7. Served as Member in UPES Discipline Committee during the academic sessions 2014-15 and 2015-16.
8. Served as Class Representative of Electronics Engineering Branch for all 4 years of Bachelors.
9. Student Volunteer at the 10th Uttarakhand State Science and Technology Congress 2015-16.

DESIGN:
10. Served as IT and Design Head at UPES-IEEE Student Chapter wherein have designed a website for the student chapter and themes for various events.
11. Served as IT and Design Team Executive in University Annual Techno-Legal-Management Fest Ignite in 2014 and as Team Manager in Ignite 2015.
12. Have designed themes for various events of the technical societies such as IEEE, SEG, UPES Google Hub etc.

PHOTOGRAPHY:
13. Organised UPES's first Photography Exhibition, The Explorer's World ver1.0 in 2014.
14. Worked as photographer in Ignite 2014, during events of various technical societies such as IEEE, ACM etc.

PERSONAL DETAILS

Date of Birth	27-March-1995
Sex	Male
Current Residence	Netherland
Nationality	Indian
Mother's Name	Mrs. Sudha Yadav
Father's Name	Mr. Ram Nivas Singh Yadav
Languages Known	English, Hindi

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