

Formal Education

Pursuing **MSc. Mathematics & B.E.(Hons) Electronics and Instrumentation** (present)

CGPA – 7.71/10 at the end of 5/10 semesters. (dual-degree program)

Birla Institute of Technology and Science, Pilani, Goa Campus, India.

Received Merit-cum-Need Scholarship [Year 2].

Graduated secondary school (CBSE) with **94.4% marks**. (2017)

Subjects: Physics, Chemistry, Mathematics, English, Informatics Practices.

B.K. Birla Centre for Education, Pune. (Co-Ed, Residential, IPSC)

Testing:

- SAT II {Math Level II}: **800/800** & {Physics}: **790/800** (03/12/16)
- SAT I: **1480/1600** [Math: 780/800, Reading and Writing: 700/800] (05/11/16)
- Graded Examination in Spoken English, Trinity College, London: **Grade B2.1, Level 7** (2013)

Professional Experience

- Remote Research Intern** to Prof. Dominique Blouin @ Telecom ParisTech. (05/20 – 07/20)
 - Ontology of Multi-Paradigm Modelling for Cyber-physical Systems.
- Academic Project Assistant**, Reconfigurable Computing Lab, BITS Goa.
 - {Design Project} ‘Design & implementation of *Butterfly Architecture*’ (Year 4 | Sem 1)
 - {Lab Project} ‘Development of algorithm of an EEG decomposer’ (Year 3 | Sem 2)
 - {Study Project} ‘Implementation of MaMeMi filter on Xilinx FPGA.’ (Year 3 | Sem 1)
- Academic Project Assistant** to Prof. Soumyadip Bandyopadhyay .
 - {Study Project} ‘Translation from AADL to PN for formal verification’ (Year 4 | Sem 1)
 - {Informal Project} ‘SamaTulyataII: Efficient PN-based equivalence checker’ (Year 3 | Sem 2)
- Informal Research Assistant**, ABB Corporation Research Lab (Year 3 | Sem 2)
 - Analysis of AADL capabilities and extensions. Guide: Prof. Santonu Sarkar.
- Research Intern**, pixxel (04/19 – 03/20)
 - PS-1 Summer Project Title - ‘Designing an X-band antenna for the nano-satellites, post the PoC, in HFSS and implementing the layout in ADS.’ (05/19 – 07/19)
 - Designed, manufactured, tested S & X-band patch antenna in anechoic facility.
 - Developed preliminary patents for different antenna configurations.
 - PoC satellite set to fly with micropatch antenna designed by me.
- Summer Intern**, Coherent Laser India Pvt. Ltd., Mumbai. (06/18 – 07/18)
 - Learnt basic theory of and operated CO₂, Diode - Nd:YAG, and Fiber Laser Systems. Performed basic troubleshooting and accompanied engineers in-field.

Publications

Journals

- *R. Mittal, A.A. Prince, S. Nalband, F. Robert, A.R.J. Fredo*, “Hardware Accelerator for Detrending Measured Biopotential Data”. (review, IEEE-TIM)
- *R. Mittal, A.A. Prince, S. Nalband, F. Robert, A.R.J. Fredo*, “Modified- MaMeMi Filter for Efficient Extraction of Frequency-Dependent Artifacts from Electroencephalogram”. (review, IEEE-TSP)
- *R. Mittal, P. Bhattacharya, S. Bandyopadhyay, S. Joshi*, “Virtual CSIS Education in India: Challenges and Opportunities”. (review, CAIS)

Conferences

- {Gold Medal} *R. Mittal*, “SamaTulyataII: Validation of Code-Optimizing Transformations Involving Loops for Petri Net Based Models of Programs”, Student Research Competition, PLDI-2020.
- *R. Mittal, R. Banerjee, S. Sarkar, S. Bandyopadhyay*, “Translation Validation of Code-Optimizing Transformations, Involving Loops, using Petri Net-based Program Models”, Workshop PNSE-2020.

Book Chapters

- Co-author, Chapter 3: A Feature-Based Ontology for CPS in “[Multi-Paradigm Modelling Approaches for Cyber-Physical Systems](#)”, Academic Press, Elsevier.

Technical Skill Set

Software

- Advanced: Xilinx Vivado, System Generator & SDK, MATLAB & Simulink, HFSS, ADS, CPN tools, Eclipse IDE, Protege
- Intermediate: AnSYS Maxwell, Cadence, pSpice, RStudio, AutoCAD, Arduino, AGI STK.
- Other: Adobe Premiere Pro, Adobe Photoshop, Adobe Audition
- Languages: Python, C, C++, Verilog, VHDL, MATLAB, LaTeX.

Hardware

Vector Network Analyzer (VNA) | Workshop: Manual and Power Tools

Relevant academic courses (grade obtained)

Communication Systems (A) | Control Systems (B) | Signals & Systems (A) | Digital Design (A)
EM Theory (A) | Computer Programming (B)

First Degree Teaching Assistant, Mathematics I (IC: Dr. Tarkeshwar Singh)

Extra-curricular

- **Core Member**, Alumni Relations Cell, BITS Goa.
- **Member**, The Drama Club, BITS Goa.
 - **Writer and Director**, Best Original Script for ‘[Vishm Jwar](#)’ (Hindi) Unmaad’19 - IIM Bangalore
A full-length period drama revolving around the caste-system in India
 - **Director**, 1st Place, [Streetplay](#) (non-professional) Baptizer’18 – Christ, Bangalore
- **Co-director and Editor**, music video for [Baatein](#) by Gravity (2019)