

# Amey Gaikwad

*Indian Institute of Technology- Bombay*

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## Education

- 2015-present **Indian Institute of Technology - Bombay, Mumbai.**  
B.Tech in Engineering Physics, Minor in Mathematics, *CPI* - **9.83/10.0**.  
**Ranked 1st in the Physics Department** and among the top 10 in the Institute.
- 2013-2015 **Intermediate/+2, Pace Junior Science College, Nerul, Percentage - 94.95.**  
Topper in Maharashtra Board in **Physics** (100/100) and **Electrical Maintenance** (200/200)
- 2013 **Matriculation, Ryan International School, Kharghar, Percentage - 96.7.**

## Research Internship

- Summer **ICTS SN Bhatt Memorial Excellence Fellowship Program - Instantons and Monopoles.**  
2017 *Dr. Pallab Basu, Faculty, String group, ICTS-TIFR*
- Confinement: Instantons, solitons and monopoles in Non Abelian gauge theories.
  - Report:
- December **National Program on Differential Equations(NPDE)-Multistability of planar bistable liquid crystals.**  
2016 *Prof. Neela Nataraj, Department of Mathematics, IIT Bombay*
- Finite Elements Method and the Newton Galerkin approximation to analyse what drives the normal bistable liquid crystals into multistability.
  - Report: <https://github.com/ameypg16/NPDE-Final-D1/blob/master/Science.pdf>

## Course Projects

- Spring **Music Synthesis.**  
2017 *EP 226 - Waves, Oscillations and Thermodynamics*
- Developed a code to tailor a song from the bare essentials - the frequency of the notes/chords involved and the duration.
  - Report: <https://github.com/ameypg16/Resume/blob/master/music-synthesis-report.pdf>
- Spring **3 body Collider Simulation.**  
2017 *EP 230 - Electronics Lab III*
- Developed a code in VHDL using an FPGA board to simulate an animation involving 3

bodies.

- Project Report :  
[https://github.com/ameypg16/Resume/blob/master/FPGA\\_project\\_3\\_body\\_collision.pdf](https://github.com/ameypg16/Resume/blob/master/FPGA_project_3_body_collision.pdf)

Autumn **Chaos in Cryptography.**

2016 *PH 542 - Non Linear Dynamics*

- Analyzed the topological similarities between cryptography and chaos theory and how chaos can be used in cryptography.
- Project Presentation: <https://github.com/ameypg16/Resume/blob/master/NLDproject.pdf>

## Academic Achievements

- 2015 **Awarded the Institute Academic Prize** by IIT Bombay for the year 2015-2016 (**3rd in the Institute - CPI-9.94**)
- 2015 Secured an **SPI of 10.0** in the first semester
- 2015 Awarded **AP** grade in Calculus and Numerical Analysis
- 2015-2016 **Department Rank 1** in the Physics Department
- 2015 Topper in Maharashtra Board in **Physics** (100/100) and **Electrical Maintenance** (200/200)
- 2014-2015 Qualified in **National Top 1% in NSEP and NSEA**

## Scholarships

- 2015 Awarded eligibility for **INSPIRE Scholarship** (by qualifying within top 1% of Maharashtra board at class XII – March 2015)
- 2013 Kishore Vigyan Protsahan Yojana (**KVPY**) awarded by Department of Science and Technology, India
- 2011-2012 National Talent Search Scholarship **NTSE** awarded by the National Council for Educational Research and Training.

## Computer Skills

- Programming C++, Python, Java, VHDL
- Science Numpy, Scipy, Matplotlib, MATLAB, Octave, Mathematica, Gravipy
- Softwares L<sup>A</sup>T<sub>E</sub>X, Solidworks, AutoCAD, Quartus(FPGA), OriginPro

## Key Courses

- Physics Non Linear Dynamics, Special and General Relativity, Classical and Quantum Mechanics, Electromagnetism, Data Analysis and Interpretation, Thermal Physics, Wave, Oscillations, Optics
- Mathematics Calculus, Linear Algebra, Differential Equations, Complex and Real Analysis, General Topology, Numerical Analysis
- Others Introduction to Electronics, Digital Systems