

# Nayan Deshmukh

3rd year Undergraduate Student

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## ACADEMIC DETAILS

Year	Program/Board	Institute	CGPA/%
2014-present	B.Tech, Computer Science and Engineering	Indian Institute Of Technology, Kanpur	9.2/10.0
2014	All India Senior School Certificate Examination	Vidhya Mandir Sr. Sec. School, Kota	93.2%
2012	All India Secondary School Examination	St. Jude's Hr. Sec. School, Khargone	10.0/10.0

## SCHOLASTIC ACHIEVEMENTS

- Received the **Academic Excellence Award** for exceptional academic performance in 2014-15 academic session
- Secured 1<sup>st</sup> position among 25 teams in Electromania, Techkriti15 (Annual Technical Festival of IIT Kanpur)
- Secured 3<sup>rd</sup> position in FPGA Design Challenge, Techkriti16 (Annual Technical Festival of IIT Kanpur)
- Secured **All India Rank-184** among 150,000 students in JEE Advanced 2014
- International Mathematics Olympiad 2012 (SOF) : Secured **State Rank-3** in Madhya Pradesh
- National Science Olympiad 2012 (SOF) : Secured **State Rank-14** in Madhya Pradesh

## WORK EXPERIENCE

- Xorg(Mesa): Implement features in Gallium3D interface** [\[Code\]](#)  
Open Source Project under Christian König (Senior Developer, AMD) Jun'16 - Present
  - Implemented luma keying as part of color space conversion code and bicubic and lanczos interpolation algorithms as fragment shaders in TGSI
  - Reworked the VPDAU mixer implementation so that it uses temporary buffer while applying filters
  - Implemented DRI3 helper code for the Gallium interface for hardware with PRIME GPU offloading
- Edge-disjoint spanning trees in undirected graphs** [\[Report\]](#)  
Internship under Dr. Ovidiu Daescu (Professor, The University of Texas at Dallas) at IIT Kanpur May'16 - Jul'16
  - Worked on finding 2 edge-disjoint spanning trees in a special class of graphs with  $2n-2$  edges and a double edge
  - Proved a lemma regarding allocation of edges of 2,3 and 4 degree vertex
  - Conceptualized an algorithm to construct the two trees using the lemma

## PROJECTS

- Rust bindings for libevdev** [\[Github\]](#)  
OpenSource Project mentored by Peter Hutterer (Senior Software Engineer, RedHat) Dec'16 - Present
  - libevdev is a wrapper library for handling evdev kernel devices
  - Implemented a safe wrapper to libevdev library, also wrote documentation and tests for the bindings
- ZIZO101: Social Robot** [\[Report\]](#)  
Electronics Club Project May'15 - June'15
  - Developed an animatronics head capable of human interaction via speech and through its Twitter handle
  - Used Radxa Rock as the main development board, Python as the primary language, implemented speech to text using Google's speech API and Artificial Intelligence through Pandorabots
- NachOS** [\[Code\]](#)  
Course Project under Dr. Mainak Chaudhuri (Associate Professor, IIT Kanpur) Oct'15 - Nov'15
  - Implemented system calls pertaining to fork, exec, join, yield, sleep and exit for NachOS
  - Implemented process scheduling algorithms like UNIX scheduling, round-robin, SJF, non preemptive
  - Implemented page replacement algorithms such as random page allocation, FIFO, LRU and LRU clock
- Android Library** [\[Github\]](#)  
Independent Project Jan'15 - April'15
  - Developed a library for Android which collects data on time spent by user on each app
  - Explored various ways to calculate the time spent by user on each ways and implemented the most efficient one

## TECHNICAL SKILLS

- Programming Language: C, Python, JavaScript, Rust, Ruby.
- Libraries and Tools: Git, Bash, Rails, Vim, Processing,  $\LaTeX$ , GDB, GNUplot, Docker, Make, Cargo
- Development Platforms: Atmel AVR, Arduino.

## RELEVANT COURSES

Operating Systems	Theory of Computation	Design and Analysis of Algorithms
Data Structures and Algorithms	Computer Organization	Introduction to Programming
Discrete Mathematics	Logic in Computer Science	Computing Laboratory