

# SANTWANA VERMA

Fourth Year Undergraduate  
Department of Electrical Engineering  
Indian Institute of Technology, Kanpur

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## EDUCATIONAL QUALIFICATIONS

| Year         | Degree     | Institution(Board)                     | CGPA/%   |
|--------------|------------|--|----------|
| 2015 – 2019* | B.Tech, EE | Indian Institute of Technology, Kanpur | 7.6/10.0 |
| 2015         | AISSCE     | Kendriya Vidyalaya, Lucknow            | 94.6%    |
| 2013         | ICSE – X   | Mount Carmel College, Lucknow          | 95.8%    |

\*: Expected

## SCHOLASTIC ACHIEVEMENTS

- AIR **2029** in JEE Advanced 2015
- State Rank-299** UP State Engineering Exam'15

## PROJECTS

**Flash Removal from Photographs** *IIT Kanpur*  
*Prof. K.S Venkatesh* Aug'17 - Oct'17

- Wrote an algorithm using techniques like feature detection, image registration, edge detection etc., to detect a flash in photographs and generate a flash-free photograph using two photographs.
- Report:** [home.iitk.ac.in/~santwana/Report.pdf](http://home.iitk.ac.in/~santwana/Report.pdf)

**Antaragni App** *IIT Kanpur*  
*Programming Club Summer Camp* May'16 - Jul'16

- Updated the existing app for the cultural fest of IIT Kanpur, Antaragni'16, with new features and made the information retrieval of the existing project dynamic by shifting the database on MongoDB.
- Integrated Facebook, Google Sign-in to utilize social information of the user.

**I Speak(Text-to-Speech Converter)** *IIT Kanpur*  
*Google Devfest 2016* Oct'16

- Developed a Text-to-Speech android app, using Google APIs, that takes documents as input and reads out text.
- Prepared a business model describing motivation, customer segment, revenue streams and problems in development.
- Github:** [saransh7/onCreate](https://github.com/saransh7/onCreate)

## RELEVANT COURSES

**CS:** Data Structures and Algorithms; Principles of Programming Languages; Computer Organization; Operating Systems\*

**Electrical:** Signals, Systems & Networks; Control Systems Analysis; Microelectronics; Digital Electronics; Principles of Communications; Digital Signal Processing; Communication Systems; Information Theory\*

**Math:** Probability and Statistics, Partial Differential Equations, Complex Analysis, Theory of Computation\*  
\* *Ongoing Courses*

## POSITIONS OF RESPONSIBILITY

- Senior Executive**, Web-App team, Antaragni'16
- Student Guide**, Counselling Service, IIT Kanpur
- Academic Mentor**, *Electrodynamics*, IIT Kanpur

## WORK EXPERIENCE

**NYU, Tandon School of Engineering** *New York*  
*Research Intern* Summer 2018

- Validated a mathematical model proposed for TCP-BBR, the latest congestion control algorithm by Google, using its Linux Kernel code.
- Noticed a decrease in the performance of the TCP-BBR for the wireless scenario, while it works as expected for the wired connections.
- Designed an experiment on the Clouddlab test bed to collect data to validate the model with local changes to the kernel.
- Utilities used: 'netem' to emulate WAN conditions, 'ss' to investigate sockets, 'iperf3' to emulate data transfer between the nodes.
- Github:** [santwanav/TCP-BBR-doc](https://github.com/santwanav/TCP-BBR-doc).

**New York Office of IIT Kanpur** *Kanpur, India*  
*Android App Developer, Prof. Manindra Agarwal* Summer 2017

- Android App for Information Retrieval and Management:** Worked on scalable app, designed in MVVM structure.
- Served as a peer mentor and led a team of 3 interns for group hacking and development of app.
- Integrated various backend services in the app using Retrofit and OkHTTP.
- Implemented unit testing and linting.
- Integrated wysiwyg editor in app with features like saving drafts and publishing attachments.
- Improved UX/UI as per Google's Material Design guidelines.

**New York Office of IIT Kanpur** *Kanpur, India*  
*Frontend Developer, Prof. Manindra Agarwal* December 2017

- Worked on porting components of a normal Angular App to one based on redux architecture (NgRx).

## SKILLS

**Programming:** C, Java, Python, JavaScript, Kotlin, Haskell, C++

**Web:** TypeScript, Angular, Reactive Programming

**App:** Android Studio, Gradle

**Utilities:** Linux Kernel Programming, Linux Shell Utilities, NgRx, GDB, Git, Matlab, OpenCV, OkHTTP, Retrofit, L<sup>A</sup>T<sub>E</sub>X, Vim

## MISCELLANEOUS

- Mentored 15 students for a Cyber Security Project in Summer'18.