

# Kartikey Tewari

COMPUTER SCIENCE AND ENGINEERING STUDENT

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## Education

### National Institute of Technology

Himachal Pradesh, India

B.TECH AND M.TECH IN COMPUTER SCIENCE AND ENGINEERING (9.00)

August 2017 - May 2022

- Courses: Data Structures, Algorithms, Software Design, Computer Networking, Distribute Computing
- Awards: NTSE Scholar, Placed in top 0.1% candidates in Mathematics Intermediate Examination.
- Expert at Codeforces with highest rating of 1601. (top 0.07% in India)
- Four stars at Codechef with highest rating of 1874. (top 0.06% internationally)

## Skills

- **Languages:** C, C++, Python
- **Web Stack:** HTML, CSS, Javascript, Bootstrap, SemanticUI, NodsJS, ExpressJS, MySQL, MongoDB
- **Technologies:** Octave, R, LaTeX, Git, Github, AWS

## Work Experience

### FAH Technologies

Gurgaon, India

SDE INTERN

August 2020 - September 2020

- Developed REST APIs for user on-boarding, scalable to over 15,000 requests/second.
- Configured and deployed web services on Docker containers, using test driven development.
- Designed and documented the API on Swagger Notebooks in Open-API3 format.

### NIT Hamirpur

Himachal Pradesh, India

RESEARCH INTERN

May 2020 - July 2020

- Designed a new tree based Data Structure and the algorithms to build and perform queries on it.
- The tree can handle all types of range-based queries for transitive functions while providing scalable solutions.
- Reduced Time complexity for query operations by more than 900% while reducing space complexity by 25% for storing data.
- Authored a research paper on the tree, that is in the process of publication by the International Journal of Information Technology.

## Personal Projects

### Fingerprint Authentication System

Data Indexing

January 2021

- Built an authentication system from scratch using wavelet tree for indexing.
- The authentication system is based around fingerprints rather than passwords, making it inherently secure.
- Improved Data retrieval time by around 80% compared to hashing.

### Parallel Wavelet Tree

Parallel Computing

August 2020

- Proposed a novel approach for parallelizing the building of wavelet tree.
- Reduced the build time of Wavelet tree by 58%, while keeping the space complexity same.
- Devised a test bench that statistically tests the algorithm, using randomly generated datasets.

### Yelpcamp

Web App

May 2020

- Made a clone of Yelp, as a website of reviews.
- Implemented user-authorization and back-end API, having full CRUD functionality.
- Wrote REST APIs for communicating with database.
- Deployed the code on Heroku using Git, while hosting back-end on MongoDB Atlas cluster.

### Color Ninja

Front-end App

May 2020

- Made a gaming app using HTML and CSS.
- The app provides the user with three percentages of red, green and blue color.
- User then have to determines the color that will form after mixing the three colors, from a given palette of colors.