

# Vinay Kumar Agarwal

**Strengths :** Structures and Algorithms

**Interests :** Problem Solving and Computer Systems

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## Education

Year	Degree/Certificate	Institution/Board	CPI/Percentage
2015-2019	Bachelor of Technology(ME,CSE)	Indian Institute of Technology Kanpur	8.2/10
Dec, 2017	Exchange Internship (Research)	Tomsk Polytechnic University, Tomsk, Russia	5.0/5.0
2015	AISSCE, XII(CBSE)	Nehru World School, Ghaziabad(U.P.)	97.2%
2013	AISSCE, X(CBSE)	Dewan Public School, Hapur(U.P.)	10/10

## Scholastic Achievements

- Secured an All India Rank **573 in IIT JEE (Main) 2015** and **1139 in IIT JEE (Advanced) 2015** amongst 1.5 million candidates
- Built high Sharpe alphas for USA liquid stocks and ranked **5<sup>th</sup>** during **IIT Kanpur Alphathon 2019** organised by **Worldquant**
- Secured **Overall Rank 212 (in 2015)** in finals and **Zonal Rank 4** in prelims in **National Science Olympiad** conducted by SOF
- Secured **Overall Rank 178 (in 2014)** and **Zonal Rank 17** during the finals in **National Science Olympiad** conducted by SOF
- Awarded for **National top 0.1%** in **Informatics Practices** and **Mathematics** in AISSCE 2015 by HRD ministry of India
- Cleared **NSEC 2014** and **NSEA 2014** conducted by Indian Association of Physics Teachers

## Research Experience

**Junior Research Fellow, TPU, Russia | Supervisor: Prof. Sergey Axyonov, Cybernetics Department, TPU** DEC 2017

- Familiarized with the possible **structures for information extraction** from STL images using image processing routines
- Experimented with **Decision Trees, Random Forests** and **KNN** for classification task using python machine learning libraries
- Pre-Processed lung images and made an **automatic learning tool** to mark abnormal (infected) regions in the image
- Successfully **improved the tool accuracy to 92%** and proposed implementation of the same for different body parts

## Work Experience

**Applications Engineer, Oracle India | Java, MySQL** JULY 2019 – PRESENT

- Write efficient and maintainable code for supply and inventory planning engine and features built around it in JAVA.
- Work on feature demands and provide ideas for enhancing the platform usability from end user perspective.

**Networking Intern, Wipro Limited | Python** MAY 2018 – JUL 2018

- Collaborated with the networking department to devise a **threat intelligence system** for the organisation
- Completed the CCNA course and worked on **network simulations** using Cisco Packet Tracer to make efficient networks
- Authored a **python tool** for automated searching of malicious IPs and domains and generating threat intelligence reports

**Back-End Developer Intern, IITK NYC Office | Scala, Akka, CouchBase, ZeroMQ** MAY 2017- NOV 2017

- Worked on the backend of a distributed web application, written in **Scala**
- Rendered the content asynchronously using **Couchbase DB** and restricted the creation of reserved usernames
- Researched on **Akka** tracing extension using **Zipkin server** for tracking internal requests and performing code analysis

**Software Engineer Intern, Maximi Labs | Python** DEC 2016

- Contributed towards more robust API with shorter, modular code and implemented using **RESTful APIs with Django**
- Used **OAuth2** for secure login, **Celery** as asynchronous task scheduler and **Web sockets** for interactive communication

## Selected Projects

**Demographic and economic Analysis | Supervisor: Prof. Arnab Bhattacharya, IIT Kanpur** AUG 2018-NOV 2018

- Worked on United Nations database to draw counter intuitive insights using **Agglomerative clustering** and **Regression**.
- Implemented **Relief Algorithm, PCA** for feature selection; **Information Gain** for decision making; and **Ensembling learning algorithms** for classification of 147 countries globally into developed, developing and underdeveloped countries.

**AcadHandle | Supervisor: Prof. Arnab Bhattacharya, IIT Kanpur** JAN 2019-APR 2019

- Built a web application using **LAMP** stack to emulate academic procedures for campus students, covering complete cycle of a semester including and not limited to registration, course request and allocation, grade distribution by the professor, etc.
- Incorporated best schema design principles to avoid redundancy and normalised the complete structure on DB front.

**TreadWill | Supervisor: Prof. Nitin Gupta, IIT Kanpur** MAY 2016-JUL 2016

- Collaborated for development of the website ([www.treadwill.org/](http://www.treadwill.org/)) aimed for treating people suffering from depression
- Developed API modules using **Django Python Framework** and **MySQL** and improved UI using **JavaScript** and **Bootstrap**

## Technical Strengths

**Programming | Utilities** : C/C++, Golang, JAVA, Python, Scala with Akka | Linux Shell Utilities, OpenCV, GIT, LATEX, MATLAB

**Web | Others** : Django, Django-REST, SpringBoot, Bootstrap, HTML, CSS | Pandas, Numpy, Scipy, Matplotlib, SKLearn

## Relevant Coursework

**Computer Science** : Data Structure and Algorithms, Shell, Database Systems, Computer Networks, Data Mining, Scripting

**Mathematics** : Scientific Computing, Sampling Theory, Probability and Statistics, Complex Analysis, Linear Algebra