# Vinay Khilwani

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## Education

**Pandit Deendayal Energy University (PDEU, formerly PDPU)** — Gandhinagar, Gujarat
*Bachelor of Technology in Computer Engineering — Current CPI:* ***9.98/10.00*** — *June 2018 – Present*

**Anand Niketan Satellite** — Ahmedabad, Gujarat
*12th ISC - Science — 91.6%* — *May 2018*

## Work Experience

**Google, India** - *Software Engineer Intern* — Jan. 2022 – Present

**DPhi** - *Problem Setter & Tester Intern* — Sep. 2021 – Dec. 2021
- **Setting and Testing** algorithmic problems, to be used by companies, in hiring rounds.

**Reliance Jio** - *Software Engineer Intern* — May 2021 – July 2021
- Worked on adding functionalities to the browser **JioPages**.

**CodeChef College Chapters (Unacademy)** - *Technical Writing Intern* — Nov. 2020 – Dec. 2020
- Designed **3 Competitive Programming (CP) Contests** and wrote editorials for the same. Drafted blog posts regarding **4** upcoming events and summary of **3** completed events, on CodeChef-Discuss & CodeChef-Blog.

## Projects

**OS-VIS** | *ReactJS, SCSS, HTML, CSS, JS, GoogleCharts API* (Website) — Aug. 2020 – Dec. 2020
- Developed a website, with **animation of process scheduling algorithms** of Operating System. Implemented all algorithms with valid choice of priorities to choose from, for the user, and many more features such as, "Time Log View", "Preemptive/Non-Preemptive" Option, etc. (GitHub Link)

**E-Banking Application** | *Java Swing* — Jan. 2020 – May 2020
- Developed an application for **E-Banking**, using Java Swing/Applet, with local File Handling Operations, for storing and managing data. (GitHub Link)

**Moore FSM for Signal Strength Indicator** | *Logisim* — Oct. 2019 – Nov. 2019
- Designed a **LCD display** for signal strength indication, using "Moore Machine" Basics, in Logisim, for a Cell Phone Screen. (GitHub Link)

**Airport Management System (DBMS)** | *MySQL* — July 2019 – Nov. 2019
- Developed a DBMS for "Airport Management", starting from design of "ER Model" and "Relational Model" to implementation of it, in MySQL, for more interactive and accurate implementation of our idea. (GitHub Link)

## Skills

**Languages**: C/C++, Java, Python, MySQL, JavaScript, HTML5, CSS3, PHP, MATLAB
**Frameworks**: Material-UI, Flutter
**Tools**: Git, Visual Paradigm, Cisco Packet Tracer, Logisim, Scilab, Figma, Google Colab, VS Code
**Advanced DSA**: SQRT Decomposition, Segment Tree, Fenwick Tree, Mo's Algorithm, Z Algorithm, KMP Algorithm, Sparse Table, Heavy Light Decomposition, Trie, Edmond Karp Algorithm, Dinic Algorithm, etc.
**Libraries**: ReactJS, numpy, matplotlib, OpenCV, graphviz
**Others**: Neural Networks, Machine Learning, Communication, Leadership, DSA

## Research Work

**Authentication Mechanism for IoT Infrastructure** | (Github Link) — Aug. 2021 – Present
- Working upon developing an **authentication mechanism** to secure the data on server-side and client-side and to secure the data channel of **server-client communication** in a cloud-based IoT Infrastructure.

**Basketball Shot Conversion Prediction using various ML techniques and its analysis** — Aug. 2021 – Present
- Working upon predicting **Basketball Shot Conversion Rate**, using Data Analytics and various ML techniques and their comparison. (Research Paper Link)

**Diabetes Prediction, using Stacking Classifier** | (Github Link) — Feb. 2021 – May 2021
- We stacked 6 classifiers, namely Support Vector Machine, Artificial Neural Network Classifier, Logistic Regression Classifier, Decision Tree Classifier, Random Forest Classifier and Gaussian Naive Bayes Classifier, into a single model, which as a whole, uses Logistic Regression Classification on these **6 basic hyperparameter tuned models**, to predict diabetes using some features of a person's health. Achieved testing accuracy of **82.68%**. (Research Paper Link)
- **Conference**: IEEE AIMV-2021 (Website)
- **Publication**: Link

## Interests & Courses

**Technical Interests**: Software Engineering, Machine Learning, Cyber Security, Algorithms & Theory, Systems
**Other Interests**: Basketball, Chess, Mental Arithmetic, Sudoku, Speed Cubing, Problem Solving, Competitive Programming (CP)
**Extra Courses (Certifications)**: Programming in C++ (by NPTEL), Introduction to Programming in C (by NPTEL), The Joy of Computing using Python (by NPTEL), Electric Vehicle Technologies (by PDEU), Innovative Financial Instruments & Fundamental of Finance (by PDEU), Project Management (by PDEU), Machine Learning with Python (by Microsoft), SQL (by Stanford Online)

## Technical Achievements

- Current **Topper** of the Batch - Undergraduate University
- **Global Rank 17 (India Rank 1)** in CodeForces Round 773 (Div. 2) (Contest Link)
- **Rating: 2109 & Global Rank 8 (India Rank 3)** on HackerEarth in CP (Username: vok8) (Leaderboard Link)
- Advanced till **Round-2** in Facebook Hacker Cup 2020 & 2021 (Username: vok8) (Link - 2021) (Link - 2020)
- Ranked **153rd out of 510 teams** at ACM ICPC Gwalior-Pune Onsite Contest (Regionals) 2020 (Team Name: TRIErs)
- **Global Rank 67 (India Rank 3)** in Google Kickstart Round-E 2021 (Username: vok8) (Leaderboard Link)
- Ranked **261st out of 722 teams** at ACM ICPC Amritapuri Onsite Contest (Regionals) 2020 (Team Name: TRIErs)
- **Global Rank 59 (India Rank 24)** in Google Kickstart Round-D 2021 (Username: vok8) (Leaderboard Link)
- **Global Rank 1 (India Rank 1)** in CodeChef May Long Challenge Division 1 (Contest Link)
- Advanced till **Round-3** in TopCoder Open (TCO) 2020 & 2021 (Username: vok8)
- Advanced till **Round-2** in Google Code Jam 2020 & 2021 (Username: vok8) (Link - 2021) (Link - 2020)
- **Global Rank 54 (India Rank 20)** in CodeChef February Long Challenge Division 1 (Contest Link)
- Ranked **1849th** in Google Hash Code 2021 (Team Name: TRIErs) (Leaderboard Link)
- **Rank-37** in TCS CodeVita Round-2 2020 (Username: vok8.khilwani)
- CodeForces Max. Rating: **2129** (**Master**) (Username: vok8) (Profile Link)
- **Global Rank 45 (India Rank 2)** in CodeForces Round 705 (Div. 2) (Contest Link)
- **Global Rank 225 (India Rank 4)** in CodeForces Global Round 12 (Contest Link)
- CodeChef Max. Rating: **2260** (**6 star**) (Username: vok_8) (Profile Link)
- **Global Rank 18** in Grand Final of TechGig Code Gladiators 2020.
- Ranked **79th** at ACM ICPC Kharagpur Onsite Contest (Regionals) 2019 (Team Name: coDEcoders)
- Won **Best Pitch** Award at the First Intra University Hackathon (Hackathon 1.0) at the University.

## Roles of Responsibility

**IEEE AIMV-21**: Head Volunteer and Web Head at the Conference. (Website) *(Dec. 2020 – Sep. 2021)*
**CSI PDEU Chapter**: Technical Head *(Aug. 2020 – May 2021)*
**SNC, PDEU**: Backend Developer, for developing their Website. (Website) *(Aug. 2020 – Nov. 2020)*
**Society of Mathematics (SOM), PDEU**: Research Head *(June 2020 – May 2021)*
**CodeChef PDEU Chapter**: Co-Founder & President *(Dec. 2019 – May 2021)*
**Dept. of Mathematics, PDEU**: Anchored and Volunteered in 1st International Conference, conducted at the University. *(Dec. 2019 – Feb. 2020)*
**Tesseract Open 2019**: Organised this World Cube Association (WCA) Competition at the University, during the Technical Fest of the University. (Link) *(Nov. 2019)*
**Innovation & Incubation Centre (IIC), PDEU**: Volunteered in organising the first Intra-University Hackathon. *(Aug. 2019 – Sep. 2019)*
**CUBE-i-CULT**: Co-Founder & President of the Cubing Club of PDEU. *(June 2019 – May 2021)*
**Parakh Trust (NGO)**: Volunteered at this NGO and helped the women in rural areas with their household and financial problems, by noting down their problems and working on them legally. *(May 2019 – June 2019)*
**PDPU Open 2019**: Organised this World Cube Association (WCA) Competition at the University. (Link) *(Apr. 2019)*