SRIVATHS P

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Education

Indian Institute of Technology, Gandhinagar   **August 2023 – June 2027**
B.Tech in Artificial Intelligence; Pursuing Minor in Computer Science | 8.76/10 CPI   *Gandhinagar, Gujarat*
Coursework — Data Structures & Algorithms I (10/10) & II (10/10); Computing (11/10); Theory of Computation (10/10); Software Tools for AI (10/10); Machine Learning (9/10); Operating Systems; Computer Networks; Discrete Mathematics;

Projects

Dockerless Online Judge — **Prof. Balagopal Komarath** | *FastAPI, SQLite, systemd*   **May 2025**
- Built a full-featured FastAPI + Jinja2 online judge for IITGN courses, enabling automated C++, C, and Python evaluation. Added authentication, multi-language support and real-time statuses. Expecting 800+ users annually from IITGN.
- Designed a fine-grained sandbox using Linux `systemd-run` user scopes & `bwrap` for per-submission isolation. Tracked CPU, memory, time, and task metrics accurately with minimal overhead compared to full containers like Docker.
- Engineered an asynchronous queue and worker pool. Used SQLite with Alembic migrations to persist users, submissions and results. Deployed on GCE with Gunicorn behind Nginx (SSL), and stored structured JSON logs for the users' actions.

Fault Tolerant Oracle for Directed Graphs — **Prof. Manoj Gupta**   **January 2024 – April 2024**
- Placed first in the Undergraduate Research Showcase poster presentation across the entire undergraduate department of IIT Gandhinagar. Extended the Single Source Shortest Path problem by considering scenarios where one edge in the graph may fail.
- Developed a probabilistic data structure to answer exact single-source shortest-path queries under single-edge failure in directed, unweighted graphs. Achieved $O(n^q)$ space and $O(n^{2-q})$ query time for an arbitrary parameter q by combining random sampling of landmark vertices with LCA-based path membership checks.

Board Game Engines | *Python, C++*
- Built high-performance engines for Chess (Python) and the Game of Y (C++). Won the Computing Olympiad Inter-Community Competition. The engines outperformed those of participants and coaches nationwide.
- Applied advanced search and optimization techniques including Negamax, Alpha-Beta Pruning, move ordering, PV-Search, and Transposition Tables. Modified the All Moves As First (AMAF) heuristic and used custom evaluation strategies for the Game of Y.

Achievements

- **CodeForces:** Maximum rating of 1998 (Candidate Master) with an All India Rank of ~130.
- **CodeChef:** Maximum rating of 2148 (Five Star) with a Global Rank of ~650.
- **ICPC 2023-24:** Qualified for ICPC Amritapuri Regionals and achieved a rank of 73.
- **IICPC 2025:** All India Rank 102 out of 45000+ participants.
- **IOITC 2020, 2023:** Qualified twice for the International Olympiad in Informatics Training Camp.
- **INOI 2023:** Achieved a silver medal and ranked top 15 in the Indian National Olympiad in Informatics.
- **Google Kickstart 2022:** Global rank 254 in round C and Global rank 259 in round G.
- **CodeChef Snackdown 2021:** All India Rank 90 and Global Rank 257 out of 75000+ participants.

Experience

WorldQuant   **April 2024 – Current**
Quantitative Research Consultant   *Remote*
- Engineered and optimized mathematical models (alphas) to forecast global financial instrument price movements incorporating technical indicators, fundamental ratios, and news sentiment and evaluated performance via backtesting.
- Optimized alpha performance against rigorous metrics (sharpe, turnover) through systematic parameter tuning and analysis.
- Implemented parameter tuning (neutralization, delay, decay) to refine model efficacy and performance.

TLE Eliminators   **February 2022 – April 2024**
DSA Educator   *Remote*
- Taught Competitive Programming to over 2,000 students students over two years. Hosted over 120 classes on topics related to Data Structures and Algorithms. Many of my students joined companies such as Microsoft, Google, Amazon and Barclays

Skills

Languages: C++, Python, Java, Kotlin, Javascript, HTML/CSS
Frameworks: FastAPI, PyTorch, TensorFlow, scikit-learn, NumPy, Pandas
Systems Tools: Linux, Git, SQLite, Gunicorn, systemd, Bash

Leadership

ICPC Algo Queen 2023 Bootcamp — **DSA Mentor**   **December 2022**
- Invited as a mentor for over 100 participants for the Algo Queen Boot Camp by Amrita University. It aims to teach programming to schoolgirls and raise a new generation of girls who can code. It is recognized by ICPC and was sponsored by IBM Quantum.