Karthik Viswanathan

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EDUCATION

IIIT-Hyderabad, *BTech. Computer Science, M.S. by Research Computational Natural Science*   **2019-2024**
GPA: 9.1/10
Relevant Courses: Design and Analysis of Software Systems, Machine Data and Learning, Computer Systems Organization, Data Structures, Data and Applications, Algorithm Analysis and Design, Introduction to Software Systems, Computing in Sciences.
Positions of Responsibility: Teaching Assistant for the course **Probability and Random Processes. Evaluated** over **100** students' quizzes, assignments and conducted **tutorials** and doubt clearing sessions.

Asian International Private School , *Ruwais, Abu Dhabi*   **2017-2019**
GPA: 97.8%
Activities: Summa Cum Laude, **Literary Secretary Leader**, School topper over the years 2017-2019, Volunteered Arabic tuitions.

EXPERIENCE

CCNSB, *Undergraduate Research Assistant*   **Hyderabad, India | May 2021 – Present**
- Working under CNRS bronze medallist ***Dr. Deva Priyakumar*** in the domain of AI in drug discovery.
- Achieved an **R2 score** of **0.833** for a project on Binding Affinity Prediction using **Graph Isomorphism Networks.**
- **Presented weekly**, working with a team of 42 members and managing two projects with **flexibility** displaying **teamwork**.

IIT-Madras, *Research Intern*   **Chennai, India | Dec 2020 – Jan 2021**
- Winter research, Systems Engineering of the Natural and the Artificial at IIT Madras. Worked on **thermal occupancy estimation**. Achieved accuracy of **100%** in normal occupancy rooms. Used data structures and portrayed **problem solving**.
- Advised by ***Dr. Raghunathan Rengaswamy,*** head of SENAI and Dean of Global Engagement.
- Achieved **95%** accuracy in high activity areas for estimating the thermal occupancy of a room using tripwire configuration by using pattern recognition techniques and Markov random field. Project is currently being used by **Freespace, HP2 4TP**.

AICrowd, *Platform Developer*   **Geneva, Switzerland | May 2020 – Aug 2020**
- **Lead** the **reputation ranking team**, fixed 3 bugs involved in graphs, asynchronous jobs, and leaderboard rankings.
- Successfully migrated over **600 attributes** involving complex relationships and normalised the new database effectively.
- **Documented** the newly launched Automatic grader from scratch and created and **revamped** the Flatland RL website.
- **Created** paper trail versionings for entities that change frequently over time to avoid data loss and cron jobs to update the leaderboard based on the current performances using **Sidekiq**. Company was founded by ***Dr. Marcel Salathe***.

Software Engineering Research Center IIIT-H, *R&D Intern*   **Hyderabad, India | Feb 2020 – Jul 2020**
- Project **SIREN**, achieved funding from the **Department of Science and Technology, India**, advised by ***Dr. Raghu Reddy.***
- Implemented **reinforcement learning-based deep web crawlers** which can extract **60,000 documents in 322 queries.**
- Achieved **94%** accuracy on **spam filter** based email classifier and provided **assistance on tech stacks** to members of the lab.

PROJECTS

- **GAopt:** Using Genetic Algorithms to **optimize weights for optimal fit** (regression problem) in 11-D space (leaderboard contest).
- **BrickUP:** Brick Breaker terminal game created using **Python** and **Colorama** with extensive powerups and levels.
- **OCount:** Occupancy counter using **Thermal Image sensing**. The project is currently being used by Freespace, HP2 4TP.
- **UPGMA:** Calculating Phylogenetic **trees** of given protein sequences optimally using Decision tree learning in **Python**.
- **HCDBMS:** Hotel chain database management system with Python **CLI** interface with extensive functional requirements.
- **Genesis** : Extensible and Scalable Genetic Algorithm library in **Python** tested on high-order TSP nodes.
- **Job-Match** : Job Matching App (LinkedIn clone) made using **MERN stack** with extensive features and job emailing and **RBAC**.
- **Grocipe** : Grocipe is an app made using **ReactNative** and **NodeJS** in order to make quarantine cooking trackable.

AWARDS

- **Dean's List - 1** for **1st position** in the branch, Spring 2021 and Monsoon 2020.
- **Second** rank in branch and **Top 5%** of the batch (**Current)**.
- **Second** rank in gulf region with **97.8%** in CBSE board examinations **(2019)**.
- **University of New South Wales (UNSW-ICAS)** excellence award for **Top 1%** in **ICAS-Computing Olympiad (2019)**.
- **15th International Rank (Top 1%)** and **2nd** Zonal Rank in **National Cyber Olympiad (2019)**.

SKILLS & INTERESTS

Frameworks: Pytorch, **TensorFlow**, OpenGL, ReactJS, NodeJS, **ExpressJS**, GraphQL, NumPy, **Scikit**, Matplotlib, Django, Flask
Languages: C, **C++**, **Python**, JavaScript, Perl, OCaml, **Matlab**, Ruby, SQL, Bash
Research Interests: AI in Healthcare, **Drug Design**, Computer Vision and Pattern Recognition, **Uncertainty Quantification**.