KISHORE KUMAR

Computer Science Undergraduate at IIIT Hyderabad

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EXPERIENCE

Software Engineer Intern   📅 May 2023 – July 2023
Uber   📍 Hyderabad, IN
Led the design and implementation of a robust, parallelized data pipeline, incorporating redundancy hierarchy, DQ checks, and monitoring tools. Successfully utilized Python, PySpark, and Piper to create an integrated solution with cloud services and HDFS, enabling the secure execution of our largest data retrieval and migration initiative (50+ TB) to date.

Google Summer of Code '22, Open Source Dev 📅 May 2022 - Sept 2022
HPX   📍 Remote
Enhanced HPX's stdlib by analyzing compiler code gen (GCC, Clang, ICPX) and optimizing auto-vectorization, resulting in an 8x speedup for AVX256 systems and a projected 16x speedup for AVX512. Implemented par_unseq and unseq policies for multiple C++ standard library algorithms, contributing to C++ standardization. Leveraged profiling tools, cmake, & template meta-programming.

Software Developer Intern   📅 Jan 2022 - June 2022
MBT Infra   📍 Hyderabad, IN
Led the development of a secure Flutter app with a Firebase backend, enabling customers to make crypto-based insurance payments. Successfully integrated Solidity tokens & contracts on the testnet, ensuring seamless transactions.

Undergraduate Researcher   📅 Jan 2022 - Present
Computer Systems Group @ IIIT-H   📍 Hyderabad, IN
Partnering with a team from Intel to enhance and achieve low-latency optimizations for critical kernels within Intel's cutting-edge implementation of the STAR DNA sequence aligner. Working under Dr. Suresh Purini.

Teaching Assistant at **IIIT-H**   📅 Jan 2022 - Present
TA for Algorithm Analysis & Design, Computer Systems Organization

Coordinator at **Programming Club @ IIIT-H** 📅 Jan 2021 - Present
Founded India's largest ICPC training camp involving 4000 students across top IITs, BITS & IIITs. Designed challenging problem sets for contests with 20k+ global participants on platforms like CodeForces and CodeChef. Delivered many lectures on data structures & algorithms topics for over 120 students.

Problemsetter at **AlgoUniversity**   📅 Nov 2021 - Nov 2021
Contributed to problem-set 50+ problems currently used by algouniversity.com

PROJECTS

- **KBLAS** C Benchmark Library & Hand-Vectorized BLAS Implementation for High-Performance Linear Algebra operations. Outperforms industry-used BLIS in L1 operations (up to 2x-4x across different tests) & Stream memory bandwidth benchmarks.

- **Sewing-Machine** Realized 130x speedup in Needleman-Wunsch algorithm by optimizing recurrence processing, cache utilization, and leveraging ILP via multi-threading & vectorization. Recognized by Intel Labs - Slides.

- **Syscalls, User Processes & Process Schedulers** for xv6-riscv Operating System, and other OS utilities like an **Interactive Shell** with piping, redirection, and zsh commands, in C.

- **Racket-Craft** A Racket implementation of a nanopass compiler for (a subset of) Racket to x86asm compilation. Optimization passes include DSATUR graph coloring for register allocation & tail-call optimization

- **Behavioral Analysis** Engaged in hypothesis testing and inferential statistical analysis, including ANOVA and regression, to assess impact of comorbidities on risk-taking behavior & life satisfaction in individuals with Bipolar I.

- **Food'oholic** Dockerized MERN Stack CRUD App utilizing Atlas MongoDB, Express backend & React frontend with UI endpoints for sellers and buyers

- **Wrath of Ares!** A multi-level CLI strategy-thriller game in Python & **Chess Rush** A 2D escape game inspired by Chess, leveraging OpenGL

EDUCATION

B.Tech. in Computer Science Engineering
📍 **IIIT Hyderabad**   📅 June 2020 - Present
CGPA: 9.43 (in-major), 9.02 (overall)
Dean's List 1 ($1\times$) and Merit List ($2\times$)

COMPETITIVE PROGRAMMING

ACM-ICPC (fightFight)
- Asia-West Continent Finalist 2022 (**#19**)
- Amritapuri Onsite Regional 2023 (**#9**)
- Amrita Onsite Regional 2022 (**#22**)
- Amrita All-India Online Qualifier 2022 (**#10**)

Meta Hacker Cup
- Ranked 472 globally in Round 2. Was one of 28 Indians to qualify for Round 3.

Google Coding Competitions
- Hashcode 2022: Ranked **296 / 10k** teams. **#21** in India.
- Kickstart 2022: Ranked **110 / 7.2k** (Round B), **185 / 9k** (Round F), **129 / 12.3k** (Round G)
- CodeJam: Ranked **3777** (2021), **2192** (2022) in **Round 2**

CodeForces (akcube) Peak rating: **2114**, (Master | India Rank ≈ 75)

AtCoder (akcube) Peak rating: **1755**, (India Rank ≈ 90)
CodeChef (akcube) Peak rating: **2112**, (5 Star)

ACHIEVEMENTS

- **Winner, Megathon 2022** (National hackathon with 700+ participants). Developed an MVP mobile app for Stellantis, integrating Nvidia Instant NeRFs and a novel Dynamic Programming solution to build a gamified incentive-driven environment for drivers.

- **Winner AI Hackfest** (Bahrain Polytechnic & Microsoft) Engineered a glove with 5 flex sensors to convert hand signs to audio using TTS & an app utilizing Azure cognitive services to provide near real-time audio descriptions of surroundings for visually impaired individuals

- **Runner-Up Turing Cup** Programming contest organized by TuringHut, VNRVJIET. (1400+ national participants)

- **Megathon 2021** Special Mention (#7) for training a crowd face-mask detection & tracking model using Yolo and DeepSORT for Qualcomm

MISCELLANEOUS ACTIVITIES

- Traded equities on the National Stock Exchange of India and realized net 7% PnL in first 3 months - Verified PnL.

- Delivered talks to audiences of over 50+ people as a moderator for the Theory Reading Group @ IIIT-H. Organized regular meetups and covered topics such as High Performance Computing - Slides

- Developed Programming Club @ IIIT-H's website using Jekyll. Hosted using github pages. (10k+ yearly visitors)

- Stack Overflow member @KISHORE_ZE (1456 points)

SKILLS

| C | C++ | Python | Dart | Java | R |

High Performance Computing	Halide
MySQL	Apache Hadoop	PySpark
OS	Networks	Linux	Firebase

| Git | Arcanist | Bash |