Mohammed Misbah Zarrar

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Portfolio | LinkedIn | Github | Certificates | LeetCode

Education

The University of Kansas, US *M.S. in Computer Science (**specialized in Data Science**)*	**CGPA: 4.0**	Aug 22 - Nov 24
Osmania University, India *Bachelor's of Engineering in Computer Science Engineering*	**CGPA: 3.9**	Jul 17 - Jul 21

Experience

The University of Kansas, *Graduate Teaching Assistant - Operating Systems*　　　　　　　Jan 23 - Nov 24

- Facilitated 2 weekly lab sessions for EECS 673 during the semester, overseeing a class of 40 students. Assisted Dr. Heechul Yun (Spring 2023, 2024) and Dr. Prasad Kulkarni (Fall 2023) in teaching, revising, and grading exams.
- Created an inclusive learning environment by leading group discussions, providing tailored support to students, encouraging participation, and enhancing the subject's website. Also redesigning course modules to optimize understanding and engagement.

Skills: HTML5, CSS3, JavaScript, BootStrap, GitLabs, Teaching

Rademacher Financial Inc., *Software Developer Intern*　　　　　　　Mar 23 - Sept 24

- Developed a Qt C++ desktop application, handling both frontend and backend. Used multi-threading to resolve bugs and optimized performance, boosting query execution speed by 4x.
- Improved PostgreSQL performance by implementing data partitioning and indexing, reducing data fetching times by 50% and enhancing retrieval for 1,000+ accounts, improving processing efficiency by 30%.
- Automated fee schedule calculations and quarterly updates for 15,000+ holdings, streamlining client financial operations and significantly reducing manual effort.
- Designed responsive, real-time validating UIs with optimized SQL query models, cutting UI load times from 20 to 0.2 seconds and elevating user experience for Billing Reviews that in-house financial advisors use.
- Verified financial trading algorithms (CRS, RSI) using automated Excel tools, improving accuracy and supporting more informed trade decisions for advisors.

Skills: QT C++, PostgreSQL, Power Automate, Excel, Multi-threading, SQL Optimization, Data Partitioning, UI/UX Design, Scrum, JIRA

Assessment & Technology Solutions, The University of Kansas, *Part-Time Software Developer*　　Nov 22 - Dec 22

- Initially, I was situated with the QA team to get hands-on with the already-developed products and made use of SpringBoot and Postgresql to remove bugs and resolve tickets.

Skills: React, PostgreSQL, JAVA SpringBoot, Git

Pantech E-Learning, *AI Intern*　　　　　　　Dec 21 - Feb 22

- Completed a 60-day internship where I was tasked with creating project assignments for the AI & Data Science course. So, I made projects such as COVID-19 disease Prediction, Customer Segmentation, Spam Classification, Digital Art using OpenCV, Gesture Detection, Drowsiness Detection, Speech Emotion Recognition, and **AI projects** | **DS projects**.

Skills: Data Aggregation, Wrangling, Visualization, Statistical Analysis, ML, NLP, TensorFlow, MediaPipe, AWS, Tableau, Flask

Projects

TinyLidarNet: 2D Lidar-based End-to-End Deep Learning Model for F1TENTH Autonomous Racing

*Research Paper - **IROS2024** | Masters Thesis*　　　　　　　Feb 23 - Oct 24

- Developed E2E network for F1TENTH, enabling autonomous crash-free & fast lap completion using Nvidia Jetson, ROS, and Deep Learning. Notably, this model aligns with the realm of **TinyML**, as its compact size enables integration into an ESP32S3 microcontroller, delivering an average **inference time of 5 ms on PSRAM**.
- This model won **"3rd place in 12th F1TENTH Autonomous Racing"** during CPS - IoT Week 2023 among 15 teams

Skills: TensorFlow, TFLite, CUDA, ROS, Deep Learning, TinyML, Embedded Systems (ESP32S3, NVIDIA Jetson), Quantization, Pruning

DeepPiCars - Autonomous Car *Masters Project*　　　　　　　Nov 22 - Jan 23

- Fine-tune DeepPiCar model on a Pi Zero using TensorFlow, adapting to environmental conditions. Implemented "On-Device Training Under 256KB Memory" with DAVE Architecture, meeting time and space constraints.

Skills: EdgeAI, TensorFlow, Python, Docker, Space and Time Optimization, Model Fine-Tuning

Intelligent Robotic Manipulator *R&D + B.E. Major Project*　　　　　　　Sep 19 - Jun 21

- In a team of 6, created a prototype for an autonomous industrial robotic arm with a combination of inverse kinematics program and computer vision to pick & place objects.
- Developed a computer vision using SSD MobileNet v2 with the aid of the TensorFlow API for the arm, so that it could identify and locate known objects within a workspace.

Skills: Embedded C, Object Detection, TensorFlow, MatLab, Computer Vision, Inverse Kinematics

Skills: C/C++, C#, Java, Python, React, SQL, Shell(Linux), .NET, R, Scala, CICD, Advance Data Structures, Probability & Statistics, TensorFlow, PyTorch, Computer Vision, Deep Reinforcement Learning(DQN), Azure, MLOps

Certifications: Google Data Analytics Professional Certificate, DeepLearning.AI TensorFlow Developer