Sibi Vishtan Thirukonda

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Education

- **Northeastern University** — Boston, MA
  Master of Science in Data Science; GPA: 3.73; Courses: Machine Learning, Time Series, Geo-spatial, NLP — *Jan. 2023 – Expected Jan 2025*

Experience

- **Open Source PyTorch - Meta** — Boston, MA
  DTW Algorithm Enhancement Contributor — *May 2024 - Present*
  - **DTW Performance Monitoring and Optimization**: Developed specialized monitoring and profiling tools tailored for Dynamic Time Warping (DTW) algorithms within PyTorch, facilitating real-time performance tracking and optimization. Created software tools in Python and C++ to analyze DTW execution metrics, resulting in a 50% improvement in model inference speeds by providing detailed performance analytics and optimizing resource utilization specific to time series data processing.
  - **Engineering Design and Implementation**: Optimized Dynamic Time Warping (DTW) algorithms using CUDA to leverage GPU architecture, resulting in a 60% increase in processing speed and significantly reducing computation time for large-scale time series data analysis.

- **Northeastern University** — Boston, MA
  Khoury College Teaching Assistant for Information, Presentation and Visualization — *Sep 2023 - Apr 2024*
  - **Business Intelligence and Data Visualization**: Developed and delivered instructional materials on business intelligence solutions and data visualization tools, including Tableau and Power BI. Guided students in creating comprehensive visual reports and dashboards, enhancing their ability to interpret and present data insights effectively. Supported class projects that achieved a 20% improvement in data comprehension.
  - **Data Management and Analysis**: Assisted students with SQL and relational database tasks, ensuring proficiency in data querying and manipulation. Conducted workshops on Microsoft Excel for advanced data analysis, incorporating functions such as VLOOKUP, pivot tables, and data transformation techniques. Facilitated hands-on exercises that improved students' data handling efficiency by 25%.

- **Lennox International - Samsung America** — Chennai, India
  Software Engineer — *Aug 2022 - Dec 2022*
  - **Integration in HVAC**: collaborated with Controls application engineers and operations to integrate advanced distributed computing techniques into HVAC control systems. Applied CUDA programming for GPU acceleration, optimizing real-time data processing by 50% and enabling sophisticated predictive maintenance algorithms.
  - **Code Optimization and Performance**: Applied deep expertise in C++ programming to develop and implement object-oriented design patterns and algorithms for optimizing HVAC system performance. Utilized multi-threading and parallel computing techniques to enhance system responsiveness and achieve a 30% reduction in latency during peak load scenarios.
  - **End-to-End Feature Development**: Contributed to the design and implementation of cutting-edge HVAC control solutions, leveraging expertise in computer algorithms and data structures. Designed scalable architectures using Docker for containerization, facilitating seamless deployment and management of AI-driven applications across global operations.

- **MLGround - Data Science Consulting** — Bangalore, India
  Data Science Intern — *Jan 2022 - Apr 2022*
  - **Complex Problem Solving and Analysis**: Developed customer churn prediction models by evaluating various machine learning algorithms such as logistic regression, decision trees, and gradient boosting. This approach led to an 85% accuracy rate, reducing client churn by 15% and improving customer retention strategies.
  - **Algorithm Development for Sales Forecasting**: Implemented state-of-the-art machine learning algorithms including Long Short-Term Memory (LSTM) networks and Convolutional Neural Networks (CNNs) for sales forecasting. Optimized models using techniques such as hyperparameter tuning and feature engineering, resulting in a 20% increase in predictive accuracy and enabling better inventory management and sales planning for clients.

- **Madurai Smart City - Corporation of Madurai** — Madurai, India
  Computer Vision Engineer (Project Lead) — *May 2020 - Apr 2021*
  - **Computer Vision Application Development**: Developed a real-time face mask detection system using computer vision techniques, enhancing monitoring capabilities by 50% for public health compliance.
  - **Advanced Problem-Solving and Communication**: Applied neural network optimizations to enhance model inference speed by 30%, improving real-time processing capabilities for urban surveillance systems. Effectively communicated technical concepts to diverse departments, ensuring project alignment with city goals and regulations.
  - **Collaboration on R&D Projects**: Worked with a multi-disciplinary team, including software engineers, data scientists, and public health officials, to develop and implement innovative urban surveillance solutions, contributing to enhanced public safety measures.

Projects

- **Real-Time Threat Detection**: Developed a hybrid model combining DTW with LSTM networks for analyzing multivariate financial time series data, improving market trend prediction accuracy. Utilized Python, TensorFlow, and PyTorch for model development and training on large datasets.
- **AI-driven Named Entity Recognition System**: Designed and implemented a context-aware named entity recognition system using Huggingface-OpenAI's GPT-3 LLMs, enhancing accuracy in diverse linguistic contexts. Demonstrated integration of advanced language models for precise information extraction.

Skills

- **Programming Languages**: Python, C++, SQL, R, MATLAB
- **Machine Learning Frameworks**: TensorFlow, PyTorch, Scikit-learn, Keras, MXNet, Caffe, Theano
- **Technologies**: Apache Airflow, CUDA, TPUs (bonus points for familiarity), Docker
- **Other**: Large-Scale Distributed Training Strategies, Autoregressive Sequence Models, Transformers, AI Compiler Knowledge (TVM, LLVM, MLIR), AWS, Azure, TPU, Apache Airflow, Hadoop
- **Domain Expertise**: Computer Vision, HVAC Systems, Embedded Systems, Linux Kernel/Driver Development, Game player development