

Pranav Kizhakkevellat Nair

pranavkn01@gmail.com +1 857-376-1899 [linkedin.com/in/pranav-k-nair](https://www.linkedin.com/in/pranav-k-nair) [pranav-k-nair.github.io](https://github.com/pranav-k-nair)

EDUCATION

Northeastern University, Boston, MA

May 2024

Master of Science in Robotics

Related Courses: Reinforcement Learning, Pattern Recognition & Computer Vision, Data Visualization

SRM Institute of Science and Technology, Kattankulathur, India

May 2022

Bachelor of Technology in Computer Science and Engineering

Related Courses: Artificial Intelligence, Data Structures & Algorithms, Object Oriented Design & Programming

TECHNICAL SKILLS & KNOWLEDGE

Languages	Python, C++, C, R, SQL, Matlab
Databases	MySQL, PostgreSQL, SQL Server
Frameworks/Libraries/Tools	Git, PyTorch, Tensorflow, OpenCV, Pandas, Scikit-Learn, NumPy, OpenMP, OpenMPI, AVX, CUDA, Docker, Microsoft Power BI, Tableau, Matplotlib, Seaborn, Jira, Confluence, Bitbucket, VS Code, Jupyter Notebook

EXPERIENCE

Multicoreware Inc., Champaign, IL

September 2024 - Present

Software Engineer

- Led a team to develop high-performance computing solutions on ML systems utilizing CPU parallelization (OpenMP, AVX2) and GPU acceleration (CUDA) to optimize algorithm execution across different hardware architectures, and improved the performance by 10x
- Enhanced LLVM-MCTOLL Binary Translator for a customer to convert ARM architecture Android APKs to x86. Implemented performance optimizations that reduced execution time by 33%
- Designed and implemented testing and validation pipelines through Shell and Python scripting to ensure output correctness
- Analyzed profiling data from Android Studio and Nsight to benchmark performance and identify bottlenecks within the code
- Collaborated in Agile Scrum development environments using industry-standard tools and methodologies, contributing to cross-functional team success and project delivery

Fiserv Inc., Chennai, India

June - July 2021

Technical Program Analyst

- Executed comprehensive ETL processes on complex employee datasets utilizing advanced Microsoft Excel functions for data cleaning, clustering, and transformation to ensure optimal data quality and consistency across multiple vendor sources
- Developed and deployed interactive Power BI dashboards featuring dynamic visualizations that provided stakeholders with real-time visibility into off-roll employee capabilities, skillset distributions, and geographic allocation patterns
- Collaborated effectively within an Agile Scrum environment to deliver data-driven insights and actionable workforce analytics, facilitating strategic decision-making regarding external vendor relationships and resource allocation optimization
- Presented comprehensive analytical findings and dashboard demonstrations to key stakeholders, translating complex data insights into clear business recommendations, supporting strategic workforce planning and vendor management initiatives

PROJECTS

Fraud Detection System, [GitHub Link](#)

- Developed an end-to-end system performing Exploratory Data Analysis (EDA) and hypothesis testing, feature engineering, data preprocessing to handle mixed data types, model development, and model deployment
- Built 6 ML models and compared them using cross-validation. Optimized performance with hyperparameter-tuned XGBoost
- Deployed the final model through a web application via Streamlit for real-time fraud detection predictions

3D Structure From Motion, [GitHub Link](#)

- Implemented a 3D structure-from-motion pipeline to generate sparse point cloud reconstructions from multiple 2D images using SIFT feature detection and keypoint matching
- Performed geometric triangulation based on the pinhole camera model to recover 3D coordinates from corresponding 2D image features
- Optimized reconstruction accuracy using GTSAM library for bundle adjustment to refine camera poses and 3D point positions

Gesture-Driven Simulated Car, [GitHub Link](#)

- Manipulated car movement in Gazebo by applying differential drive control using ROS on Linux and hand gestures
- Evaluated the difference in performance between a computer vision model trained only on RGB images and one with RGB images along with the 21 hand keypoints extracted by Google MediaPipe
- Achieved 84.4% accuracy with RGB images and 94.8% accuracy with RGB images + keypoints for gesture recognition
- Implemented Reduce Plateau scheduler to adjust optimizer's learning rate based on validation accuracy to prevent overfitting