SK ABUKHOYER

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Summary

Results-driven R&D Engineer with 2+ years of expertise in C/C++, Python, Java, and cutting-edge technologies such as PyTorch, TensorFlow. Proven experience in building classifier neural networks, quantizing models, and ensuring code compliance. Holds a Master's degree in Computer Science and Engineering with a strong project portfolio showcasing skills in AI, ML, and system development.

Technical Skills

Programming Languages: C/C++, Python, Java, SQL, Kernel programming
Technologies: PyTorch, TensorFlow, Numpy, Pandas, Sci-Kit Learn, Google Colab, Linux, CUDA
Concepts: Artificial Intelligence, Machine Learning, Deep learning, Neural Networks, Neural Model Quantization and Prunning, Classifier, Object Detector, Large Language Model, Language Processing, Probability, Database Normalization

Experience

Zentree Labs Private Limited   August 2023– Present
R & D Engineer   *Hyderabad, Telengana*
- Gained knowledge about Language model like GPT and BERT after working on this model for building the PDF-Chat app in which ChatGPT is used. Had a chance to get exposure with code compliance checking tool called cppcheck i.e, it checks **MISRA** guidelines for functional safety in Embedded system.

Zentree Labs Private Limited   Jan 2022– Aug 2023
R & D Engineer Intern   *Hyderabad, Telengana*
- Got hands-on experience on building some classifier neural network from scratch such as VGG16, Mobilenet, Resnet18 and quantized those models. Also quantized few object detector models like SSD, YOLO using qualcomm tool called **AIMET** , Deployed the quantized model into the Nvidia-Xavier embedded device via tensorRT port.

Projects

Optimization of PDF-Chat App | *LangChain, OpenAI, Streamlit, RAG, LLMs, GPT, Transformer, Python*
- This project demonstrates the integration of a ChromaDB vector store within a LangChain pipeline to develop a PDF chat application and Optimized the model using quantization and prunning technique.
- The application seamlessly incorporates PDF-based documents, allowing users to interact with an LLM (Large Language Model) without the need for fine-tuning. Users can effortlessly load PDF documents, fostering a dynamic chat environment within the application.

Object Detector using SSD | *CNN, MLP, PyTorch*
- This detector was build in the knowlwdge of original work of SSD which follows the single shot algorithm for detecting objects in a image and locating those objects within that image.
- In this project, I was responsible for preprocessing the data such as bringing the inputs to the traning space by implementing custom pytorch dataloader in which data transform and ground truth creation function is present.

Neural Model Optimization | *CNN, PyTorch, AIMET, ONNX*
- Under this project, we have optimized few classifier models and object detector model with the help of model prunning and quantization using pytorch as well as AIMET, comapred these optimized results by deploying to the embedded system.
- In the role of this work, I have quantized Resnet18 and SSD model by applying AIMET method such as post training quantization and quantization aware training, exported these models to the onnx file for visualizing in the netron.

Education

International Institute of Information Technology - Hyderabad   July 2021 - July 2023
Master of Technology in Computer Science and Engineering (CGPA: 7.1 / 10.0)   *Hyderabad, Telengana*
Maulana Abul Kalam Azad University of Technology - West Bengal   May 2017 - June 2021
Bachelor of Technology in Computer Science and Engineering (CGPA: 8.9 / 10.0)   *Cooch Behar, West Bengal*

Honours

GATE: Achieved All India Rank 815 in Computer Science and Engineering Paper in the year of 2021
NPTEL: Done few courses from NPTEL, earned silver badge and elite badge for scoring good marks in the examination