Benjamin Philipose

206-816-9055 | philiposebenjamin@gmail.com | linkedin.com/in/bphilipose/ | github.com/bphilipose1

EDUCATION

Seattle University — Seattle, WA
M.S. Computer Science, Specialization in Data Science (GPA: 4.00/4.00) — *Sep. 2023 – Jun. 2025*
- Coursework: Large Language Models, Parallel Computing, Distributed Systems, Big Data, Machine Learning, AI, LLMs.

Seattle University — Seattle, WA
B.S. Computer Engineering & Computer Science (GPA: 4.00/4.00)
- Computer Science: Algorithms, Computing Systems, Databases, Object-Oriented Development, Web Development.
- Computer Engineering: Embedded Systems, Machine Learning, Data Networks, Signals, Circuits, Microprocessor Design.

EXPERIENCE

Machine Learning Researcher — 06/2024 – 08/2024
Seattle University — *Seattle, WA*
- Developed deep learning models using PyTorch and CUDA for fMRI-based autism detection improving classification accuracy by 4%.
- Designed a data pipeline for processing structured and unstructured time-series brain signal data.
- Explored Graph Neural Networks (GNNs) and Transformer-based architectures for feature extraction and classification.

Robotics Software Engineer — 09/2023 – 06/2024
Amazon Web Services (AWS) — *Seattle, WA*
- Developed a semi-autonomous robotic cart integrating LiDAR and thermal imaging for real-time data center monitoring.
- Optimized sensor data processing pipelines in Python and C++, improving data collection efficiency.
- Implemented a barcode-scanning system using OpenCV for automated inventory management.
- Led a 9-person engineering team, driving Agile development and AWS collaboration.

Software Engineering Researcher — 06/2023 – 08/2023
National Institute of Standards and Technology (NIST) — *Gaithersburg, MD*
- Designed and developed a high-performance, low-latency data transfer tool in C++ for autonomous vehicle simulations, enabling seamless multi-simulation connectivity.
- Integrated NS-3, ROS2, and proprietary simulators to optimize simulation performance.
- Collaborated with cross-functional teams to debug sensing platforms and refine real-time system performance.
- Presented research on simulation optimization at the 2023 NIST Colloquium. Link to Article.

PROJECTS

CUDA-Optimized Sorting & Scanning (GPU Acceleration, CUDA) — 03/2024 – 04/2024
- Developed a CUDA-optimized parallel sorting and prefix scan algorithm using bitonic sort and dissemination prefix scan.
- Implemented multi-tier GPU optimizations and profiled performance using NVIDIA Nsight Systems.
- Achieved significant speedup over CPU-based methods by optimizing memory access and kernel launches.

INRIX x AWS Hackathon Winner - ResponSight — 12/2023
- Led a team to design a scalable ML model predicting traffic collision hotspots, improving EMS response times through enhanced data insights.
- Developed a full-stack application using AWS SageMaker and Python for predictive analytics, deployed for EMS use cases. Link to Article.

LegalEase: AI-Powered Business Chatbot (LLM, RAG, AI Deployment) — 01/2025 – Present
- Developed a chatbot leveraging fine-tuned LLMs and Retrieval-Augmented Generation (RAG) to provide business filing recommendations.
- Integrated legal document processing and ensured accuracy by grounding responses in statutory data.
- Deployed on a secure cloud infrastructure to protect user data and optimize inference speed.

Distributed Clustering with MPI (C++, HPC) — 03/2024 – 04/2024
- Implemented a distributed K-Means clustering algorithm using MPI to process large datasets efficiently.
- Optimized parallel execution by distributing centroid updates across 32 MPI processes, reducing computation time.
- Applied clustering to high-dimensional datasets, achieving scalable and efficient pattern recognition.

Parallelized Prefix Sum (C++, Multi-threading) — 03/2024 – 04/2024
- Developed a multi-threaded prefix sum algorithm using Pthreads, achieving nearly 2x speedup over a sequential approach.
- Optimized thread synchronization to reduce overhead and improve memory efficiency.

SKILLS

Programming: Python, C++, CUDA, MATLAB, Bash, JavaScript
Machine Learning: PyTorch, TensorFlow, Scikit-Learn, OpenCV, GNNs, NLP, Transformers, RAG
HPC & Distributed Systems: CUDA, MPI, Parallel Computing, Nsight, Multithreading, Spark, Hadoop
Data Science: Pandas, NumPy, SciPy, Matplotlib, Seaborn, SQL
Cloud & Deployment: AWS (SageMaker, Lambda, EC2, S3), GCP, Docker, Kubernetes
Software Tools: Git, Linux, Jupyter Notebook, REST APIs, Unit Testing, Agile
AWS Cloud Practitioner (Link)