Jamshed Ashurov

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Education

UC San Diego — La Jolla, California, USA
MS in Computer Engineering (GPA:3.6) — *Sep 2022 – June 2024*
BS in Computer Engineering (GPA:3.9) — *Sep 2018 – June 2022*

Experience

UC San Diego — San Diego, California, USA
Graduate Teaching Assistant — *Jan 2023 – Jun 2024*

- Created source code in **C/C++** for students to implement **TCP** flow & congestion control within **Docker** containers.
- Assisted students in implementing **ARP** and **IP** protocols.
- Created source code in **Go** for a **distributed** file-sharing application using **gRPC**, consistent hashing, and the **RAFT** consensus protocol.

Ampere Computing — Portland, Oregon, USA
CPU Architect Intern — *June 2023 – Sep 2023*

- Improved memory controller performance by implementing **Bayesian Optimization** algorithm, reducing latency by 5% and increasing bandwidth by 3%.

Nanome Inc. — San Diego, California, USA
Software Engineering Intern — *Jun 2019 – Sep 2019*

- Developed the source code to efficiently manage data from online sources into **SQLite** local database.

Projects & Research

Natural Language Processing — *Python, PyTorch*

- Implemented a **Transformer** model for English-to-French text translation.

Robotic Arm Simulation — *Python, ManiSkill, PyTorch, TensorFlow, Keras*

- Achieved 90% accuracy in a 3D segmentation task of classifying furniture components by using **PointNet CNN**.
- Built a simulation environment for a robotic arm to pick up a cube from a wall's top and place it on a target.
- Developed observation and reward functions to successfully execute **Proximal Policy Optimization**.

Snek Compiler — *x86, Rust*

- Built a compiler for a **dynamically typed** language Snek in **Rust**, implementing Mark and Compact **garbage collection** for 20% improvement in memory management efficiency.
- Optimized performance through IR transition, **constant folding**, and **variable propagation**, reducing binary size by 25% and improving program execution by 30%.

Recommender Systems — *Python, PyTorch, TensorFlow, Keras*

- Improved Amazon user-product rating accuracy from 78 to 90% using **Neural Matrix Factorization**.
- Improved Food.com user-recipe interaction accuracy from 51 to 72% using **Bayesian Personalized Ranking model**.

Chessboard Detector — *Python, TensorFlow, Keras*

- Improved real-time chessboard image processing accuracy by 15% using the **NASNetMobile CNN**.

Parallel Computing — *CUDA, C++*

- Quadrupled **LeNet-5** convolutional layer inference speed while maintaining 90% accuracy by optimizing 2D convolutions through **tiled matrix multiplication**.

Skills

Supervised ML: Multilayer Neural Networks(MNN), Boosting, MLE, Bayesian Parameter Estimation, EM.

Unsupervised ML: PCA, LDA, K-Center Clustering, K-NN, SVD.

Search & Optimization: Newton Descent, Simulated Annealing, Cross Entropy Minimization, Search Gradient, A*.

Reinforcement Learning: Deep Q-Learning, PPO, SAC, RAINBOW, Imitation Learning.

Collaborative Filtering: User-User CF, Item-Item CF, LFM, Bayesian Networks, Factorization machines.

Programming: Python, C/C++, Rust, Golang, MATLAB, Java, C#, Shell, Tcl, CUDA