

TENGDA WANG

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Education

Carnegie Mellon University

Pittsburgh, PA

Master of Computational Data Science (System Concentration), **3.89/4.0 GPA**

Dec 2024 (Expected)

- **Key Courses:** Database Systems, Distributed Systems, Advanced Cloud Computing, Deep Learning Systems, Parallel Architecture And Programming, Intro Computer Systems, Search Engines, Machine Learning, Natural Language Processing

National University of Singapore

Singapore

B.Sc. (Honors) in Business Analytics, **4.87/5.0 GPA**

May 2021

Skills

- **Programming Languages:** Python, Java, Scala, C, C++, Scala, Go, Javascript (Angular/Vue), Bash, SQL
- **Data:** Apache Spark, Apache Kafka, Hadoop MapReduce, Apache Airflow, Apache Hive, HDFS, Redis
- **Machine Learning/Data Science:** PyTorch, TensorFlow, Scikit-Learn, Keras, Tableau
- **DevOps/Cloud:** Docker, Kubernetes, Terraform, AWS (EC2, S3, Lambda, CWL, SageMaker), GCP, Protobuf, Linux, Git

Professional Experience

TikTok

Bellevue, WA

Machine Learning Engineer Intern, E-commerce Recommendation Team

June 2024 - Aug 2024

- Developed and iterated on multiple **collaborative-filtering** based algorithms in **HiveSQL** and **C++** for efficient product **recall** in a large-scale recommendation system (TikTok Shop).
- Designed and trained two-tower **embedding recall models** optimizing click-through and conversion, with a focus on feature engineering, model structure, and data pipeline. Models were deployed online and brought positive GMV impact.

Shopee

Singapore

Software Engineer in Machine Learning, Search Team

Sept 2021 - April 2023

- **Query-Category Relevance:** Improved **search quality** for million users by boosting relevant items in the search result. Achieved 92.4% offline training AUC, increased CTR by 3.71% (A/B test) and decreased bad case rate by 20.21% online.
- Architected, implemented, and maintained an **end-to-end distributed pipeline** made up of a large data warehouse, an ETL feature-extraction pipeline, a model training and inference module, and a deployment layer utilizing **Redis** cache, that handles up to 100 TB data with thousands QPS.
- Pre-trained monolingual **BERT** models using a **masked language task** on item descriptions in 8 different languages, which improved performance of downstream tasks (NER, query rewrite etc) in both **feature-based** and **fine-tuning** fashion.
- Worked collaboratively with 5+ Product Managers and Product Ops across 8 countries to generate 10 million rows of human-labeled data for model training, which significantly increased model offline metrics by 44.2%.

Bank of America Merrill Lynch

Singapore

Software Engineer Intern, Global Markets Tech Team

Jun 2020 - Aug 2020

- Designed workflows and created multiple **full-stack web applications** including frontend (**AngularJS**), backend (**Scala**), and unit-testing to help clients manage portfolios. Worked closely with the product side to ensure a well-designed **UI/UX**.

Selected Projects

- [BusTub](#) (2024): Extended the functionality of a RDBMS by implementing a buffer pool manager with LRU-K eviction policy, an extendible hash index and a B+ tree index supporting concurrent operations, a query execution engine, and a multi-version concurrency control protocol for transactions. (**C++**)
- [Distributed Proxy](#) (2024): Designed and coded a distributed proxy server that supports whole-file caching and LRU eviction. The proxy uses Java RMI as the underlying RPC protocol, and leverages check-on-use techniques to ensure cache consistency in open-close session semantics similar to the Andrew File System (AFS). (**Java**)
- [System Labs](#) (2023), Malloc Lab: wrote a segregated-list version of dynamic memory allocator that supports malloc and free to maximize memory utilization and throughput; Shell Lab: developed a process-based unix shell that supports job control, I/O redirection, and signal handling. (**C**)
- [Bachelor Thesis](#) (2021), Studied the use of neural abstractive summarization techniques (e.g. **transformers**, **seq2seq models**) to automatically generate hospital discharge summaries in electronic health records (**Pytorch**, **Tensorflow**)
- [NUS Internship Search](#) (2019), Developed and deployed a visualization web application to provide graphical and analytical insights for students to find internships (**Vue.js**, **HTML/CSS**, **Node.JS**, **Firebase**, **Highcharts**, **Travis CI**, **Heroku**)