ZACK LIGHT

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SELECTED WORK EXPERIENCE

Susquehanna International Group   Bala Cynwyd, PA
Software Engineer, market data   March 2023 – Present
- Work on low-latency CPP data parsers

Amazon Web Services   Seattle, WA
Software Engineer, multi-tenant search experience   July 2021 - February 2023
- Instrumented data durability and elastic capacities to parallelize stream processing for 10x scalability increase
- Created caches write-through DynamoDB and S3 to lower cold start (P99.9) service latency by 85%
- Increased fault tolerance via thread-lock coordination and reduce 79% of deployment-caused tickets
- Implemented React components by WAI-ARIA standards and test interactions with Puppeteer
- Detected latency patterns and deduced latency thresholds with automated data analysis

Nokia Bell Labs, Deepfield Networks   Ann Arbor, MI
Software Engineer Intern   May 2020 - August 2020
- Extended high-volume (petabytes) networking data pipeline for 6.1 billion subscriptions' instant analytics
- Converted data three-way among network layer packets, data structures, and Kafka brokers with C & Cython
- Reduced time (52%) and memory usage of building BGP IPv4&6 route maps using Pandas vectorized operations
- Enhanced multi-thread system of 47k LOC to manage deployments on AWS, docker for 100+ engineers globally

Software & Application Innovation Lab   Boston, MA
Software Engineer Intern   May 2019 - August 2019
- Built React app visually comparing confounding biases for papers, reducing CircleCI deployment time by 28%
- Expended functionalities in genetic design codebase with Spring, Neo4j, RESTful APIs, and microservices
- Automated pose estimation of mice with transfer learning (ResNet) for 17 TB of videos in Python and Bash

Information Systems Department, Boston University   Boston, MA
Research Assistant   January 2019 - August 2019
- Trained an LSTM model (90%+ accuracy) with about 1000 samples (balanced) to classify gun violence news
- Validated new embedding-based metrics on information diversity with large SQL and flat-file datasets

China Minsheng Banking Corp. (36th largest bank globally - S&P)   Beijing, China
Algorithm Engineer Intern, Robo-Advising Team   June 2018 - August 2018
- Built context-aware chatbot with neo4j to converse with security buyers, facilitating 200+ employees
- Engineered scalable program to rank, classify, and summarize news to publish on WeChat using modified TF-IDF and MMR algorithms (processing 33,582 word/s on average, 5 people's daily workload)
- Developed deep learning models (LSTM) trained from 500K+ news articles for sentiment analysis

PROJECTS

End-to-end distributed C++ Search Engine   January 2021 - April 2021
- Created 18K LOC C++ search engine without using STL or external libraries on GCP
- Scraped 105M pages using 9 distributed web scrapers in 6 days (203 page/s) piping to Linux message queue
- Built 235GB inverted indexes with HTML parser, query optimizer for Boolean & set operators, bloom filter

Study Together!, discord.me/studytogether   November 2020 - July 2021
- Created a real-time system from scratch to rank 510K+ members' online study time, totaling over 3 centuries
- Developed a MySQL database logging users' time records and backend for websites & dashboards

SKILLS

Foundation: Python, C++, C, JavaScript, Java, R, OCaml, SQL, NoSQL, Cloud (AWS Solution Architect Associate)
Tools: **:** Lucene, Hadoop Ecosystem, TensorFlow, Scikit-learn, React, Angular, Flask, Spring, shell, Linux, Vim, LaTeX

EDUCATION

University of Michigan, College of Engineering, Ann Arbor, MI   May 2021
Cumulative GPA: 3.956/4.0
BSE, Double Major in Computer Science & Data Science, Minor in Mathematics
Classes: *Computing Systems, Databases, Computer Security, Programming Languages, Computer Vision, NLP, Computational Finance, Search Engine, Bayesian, Real Analysis, Stochastic Processes*