
SITIAN LU

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SUMMARY

Machine Learning Engineer Tech Lead with 7+ years of work experience, expert in building large-scale ML systems for ads and ecommerce ranking system. Proven track record of leading teams and delivering multi-million dollar revenue impact through innovative ML solutions.

EXPERIENCE

Staff Machine Learning Engineer - Tech Lead, 12/2021 - Current

TikTok – Seattle, WA

| *Promoted from senior to staff level on 01/2025 for technical leadership and cross-team impact.*

Led a 8-person team, collaborating with multiple cross functional teams, building **TikTok Mall and Carousel Shop Ads** delivery algorithm from 0 to 1 globally. Reach over \$3.0M daily revenue, over 5% take rate. Drive **GMV Max** campaign penetration, reaching over 95%.

- **Retrieval** - TTMall ad revenue +55%, advertiser value +65% (accumulatively):
 - Launched multiple **Product Retrieval algorithms**: Real-time precise retargeting; Text/image CLIP based embedding item-to-item (i2i); Item based collaborative filtering i2i; User based swing i2i; Organic nearline retrieval.
 - Built **embedding based retrieval model** served via Approx. Nearest Neighbor (ANN) and Quantized (int8) computation over more than 10 million candidates with low latency (< 100ms).
- **Ranking** - TTMall ad revenue +35%, advertiser value +40% (accumulatively):
 - Architected and launched **Two-Tower Deep NN ranking LTR model** optimizes eCPM, which is capable of ranking thousands candidates with minimal latency (< 50ms).
 - Introduced novel **Multi-Head Tri-Tower-Xid NN ranking model** which considers user, product, ad and format all in one, achieving NDCG > 0.85.
- **Carousel Ads** - launched in Q1-2025, now reach over \$900k revenue on peak day.
 - Design and build E2E ad delivery flow with **product-aware** and **GMV Max optimization**.
 - Drive image level selection, ranking and expansion algorithm with **AGIC integration**.
- **Feature & Data Engineering**:
 - Implemented multiple end-to-end data pipelines for feature and training data processing using Hive, Spark and Flink.
 - Define and built critical retrieval and ranking efficiency metrics (**recall rate@k**, **percolation rate@k**).
- **Leadership & Engineering Excellent**:
 - Plan **quarterly team roadmaps** based on monetization goal to improve ranking efficiency and achieve market fit (ex. targeting, ROAS optimization, bidding strategy - Cost Cap, Lowest Cost, Target Cost).
 - Led TikTok Shop As core delivery oncall. Established **engineering best practice**, **oncall runbook**, drove post-mortem reflection and shared quality & engineering best practices.

Software Engineer, 03/2020 - 12/2021

Amazon.com – Seattle, WA

- Built distinctive online retail shopping experience and features for subsegment customers (ex. teenagers).
- Designed and implemented large scale services/applications with internal frameworks that enable teenager features.
- Drove operational excellence by root causing ad-hoc service/application issues and optimizing service infrastructure.

Software Engineer, 07/2018 - 03/2020

Salesforce.com – Indianapolis, IN

- Delivered customized reusable web components on AEM platform for www.salesforce.com.
 - Implemented web analytics framework based on Adobe Analytics and Google Analytics 360 industry standard.
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EDUCATION

Bachelor of Science: Computer Engineering Graduate: May, 2018

Purdue University - West Lafayette, IN | **GPA** : 3.96/4.0

SKILLS

- Python, C++, Java, C, JavaScript, OOP, TDD
- Linux, Bash, Docker, Django, AEM
- Spark, Hive, SQL, Flink, TensorFlow
- HTML, CSS, ES6, JQuery, Bootstrap