

Zachery Ye

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TECHNICAL SKILLS

Algorithms: Recommendation Systems Architecture, Model Optimization, Deep Learning
Programming Languages: C++, Python, Java
Machine Learning: TensorFlow, PyTorch
Data & Engineering: Spark, Hadoop, Docker, Kubernetes, AWS, Git

AWARDS & HONORS

- "We Commit" Value Star Awards — Shopee Annual Award 2022 (December 2022)
- Gold Medal — ACM-ICPC Asia Regional Contest Finals 2017 (December 2017)
- Gold Medal (5th Place) — ACM-ICPC Asia Regional Contest Hong Kong 2017 (November 2017)
- Gold Medal — ACM-ICPC Asia Regional Contest Shenyang 2017 (October 2017)
- Gold Medal — ACM-ICPC Asia Regional Contest Qingdao 2016 (November 2016)
- Gold Medal (5th Place) — CCPC Changchun Regional Contest 2016 (September 2016)
- Silver Medal (18th Place) — CCPC Finals 2016 (December 2016)
- Bronze Medal — National Olympiad in Informatics (NOI) 2013 (August 2013)
- Meritorious Winner — Mathematical Contest in Modeling (MCM) 2017 (April 2017)

WORK EXPERIENCE

A Top-tier Exchange - Square Feed Stream - Algorithm Lead

Head of Square Recommendation Algorithms | Tech Lead

April 2025 — Present

- As the algorithm lead for the Square Feed recommendation system, I am responsible end-to-end for algorithm optimization, engineering architecture, and team collaboration, driving a breakthrough in trading conversion for the Square feed. By establishing a complete trading attribution system, enabling cross-team collaboration, and optimizing full-stack system performance, I delivered an estimated annual incremental trading contribution of 4.11B USD.
- End-to-end Leadership in Recommendation System Architecture Upgrades & Business Growth
 - * As Tech Lead, I led full-pipeline optimization of the recommendation system (v23 → v24 → v25), coordinating among algorithm, engineering, and business teams (10+ members), and establishing a cross-department collaboration mechanism.
 - * Core annual achievements: component-driven order volume +30.95%, daily trading volume 126M USD (annual increment 4.11B USD), conversion efficiency +23.94%.
 - * Built a complete performance evaluation system and AB testing framework to ensure all improvements are purely from model contributions, excluding product or operations influence.
- System Performance Optimization & Cost Control
 - * Led offline training pipeline optimization: identified and solved memory explosion issues in offline feature construction, designed a two-phase deduplication strategy, reduced memory peak by 50%, lowered failure rate from 30% to <1%, and reduced processing time from 50 minutes to 30 minutes.
 - * Led SageMaker online inference optimization: collaborated deeply with engineering to upgrade instance configurations from 300×4x large to 150×8x large, reducing resource cost by 50% while keeping inference stable and performant.
 - * Annual cost optimization: offline training costs reduced from 6000 USD/day to 3000 USD/day, online inference cost -50%, total estimated yearly savings 2M+ USD.
- Organizational Collaboration & Technical System Building
 - * Established deep collaboration with the trading team (Tat/Maya/Choco), connecting content recommendation with trading conversion and enabling the first accurate quantification of content-driven trading contribution.
 - * Drove engineering team (Jeffrey/JerryM) to optimize feature storage (30% compression), inference performance, and deployment pipelines, raising team-wide iteration efficiency.
 - * Built standardized SOPs for model launch, evaluation frameworks, and diagnostic workflows; documented methodologies to support knowledge transfer and team capability growth.
- Feature Engineering & Model Architecture Evolution

- * v23 model: Introduced trading objectives into the recommendation model for the first time; designed a complete trading attribution pipeline from scratch: mapped 20+ trading events, created 60s/1h backfill mechanisms, and integrated futures/spot/alpha scenarios into a unified trading base table.
- * Innovatively incorporated trade_click, place_order, main_trade and other trading targets into a multi-objective model, enabling end-to-end optimization of click → dwell → trade and improving attribution accuracy.
- * 60-second order volume +16.07%, orders per user +21.78%; in high-conversion scenarios, orders per user increased by 59%–76%.
- * v24 model: systemically enhanced the feature system, introducing Category Features v3 (Track/Product/Content tri-axis classification), enriching user behavior sequence features (click/like/share/follow/comment with category statistics), leading to +32.78% 60-second orders per user.
- * v25 model: enhanced historical trading-widget click sequence features (adding 8 new side-info dimensions including author/token/zone/keyword), integrating them as sequences in the model to better understand user trading intent, increasing daily orders by +1.08%.
- * Proactively identified and fixed multiple legacy feature bugs, establishing a complete data quality monitoring system to ensure fundamental model reliability.

TikTok - Global E-commerce - Algorithm Expert

Global E-commerce Recommendation Team Member

April 2024 – April 2025

- Ranking system optimization, iterating on feature signals, model structures, samples and ranking objectives for both coarse and fine ranking
- Coarse Ranking Listwise Data Flow Distillation
 - * Achieved online-offline score alignment by supplementing fine ranking scoring samples into coarse ranking data flow
 - * Optimized distillation strategy using implicit task heads, reversed heavy structures
 - * Achieved significant improvements in US region: Shop GMV/capita +1.4957%, UV_CTR +0.4300%
- Coarse Ranking Fusion Formula Iteration, VT Pipeline Reconstruction
 - * Optimized configuration management for coarse ranking fusion formula, simplified model adjustment process
 - * Systematic parameter optimization strategy
 - * Significant growth in US region: UV_CTR +0.3650%, GMV +0.9536%
- Fine Ranking Sub-scenarios, Small Models Replacing Large Models
 - * Successfully replaced original large scenario models with Lite models by combining global large models and scenario-specific small models
 - * Small models trained with scenario-specific sample flow, reducing resource consumption and accelerating training process
 - * Maintained GMV and CTCVR while reducing training PS consumption by 52.73% and online PS consumption by 79.9%

Shopee SG - Senior Algorithm Engineer

Daily Discovery Team Member

October 2021 – April 2024

- Design and optimize ranking models for Shopee homepage recommendation system
- First Version Multi-objective Cascade Coarse Ranking Model Deployment Across All Regions
 - * Shared training and inference framework with fine ranking, accelerated online inference by caching item-side embeddings
 - * Adopted three-tower + top MLP fusion architecture to obtain cross-information while ensuring inference efficiency
 - * Achieved ~46ms coarse ranking latency with 3000 item inputs, significant improvements across all regions
 - * Multiple metrics improved: ID +2.33% click +1.59%, BR +2.3% order, VN +3.92% order
- Dual Coarse Ranking Joint Model Research and Implementation
 - * Utilized in-batch random negative samples and adopted CLIP's bidirectional CE loss with adaptive temperature coefficient

- * Achieved +5.23% order improvement offline, +2.3% click in ID and +3.36% order in SG regions online
- Coarse Ranking Multi-objective ESMM Structure Upgrade
 - * Introduced multi-level objectives, flexible adjustment of online scoring sequence weights, optimized item ranking and implicit objective training
 - * Achieved 3.35% order/user improvement in ID region
- Fine Ranking JRC Structure Upgrade
 - * Replaced pointwise training with listwise training, adopted RCR loss and CE+GE loss from JRC paper
 - * Achieved 4% click/user improvement in ID region
- Shop Display Page Fine Ranking Model Feature Selection
 - * Introduced slot multiplier optimization for feature selection, removed 59 low-weight multipliers
 - * Reduced storage capacity by 50%, improved training speed by 50%
 - * Improved order metrics by +1.27% while maintaining global click rate

WeChat Channels - Algorithm Engineer

Algorithm Recommendation Team Member

June 2020 – October 2021

- Research and development of video recommendation algorithms and backend data support for WeChat Channels
- Lookalike Model Architecture Development
 - * Built lookalike pipeline in hot feed recommendations, implemented user-to-user crowd expansion
 - * Generated historical data through MQ buffer processing by aggregating impressions for the same item, handling ~330M daily impressions
 - * Optimized online inference performance using cache for intra-round caching and bdemem for inter-round caching
- Framework Prediction Process Migration to Metis 1.0 Architecture
 - * Completed model architecture migration, decoupling model inference embedding logic from original process
 - * Created new RPC interface for computing inference embeddings for all requests
- Cold Start Recommendation Boost Formula Modification
 - * Replaced original cold start pipeline with PID control-based fusion boost formula
 - * Fine-tuned cold start volume control considering watch time, completion rate, likes and other features
- Array Type Feature Support for Recommendation Architecture
 - * Added support for array type features in video feed recommendation pipeline
 - * Implemented list feature support across all components in the data flow model
 - * Completed integration between online data flow and model training

Google - Software Development Engineer

Software Development Engineer

July 2019 – February 2020

- Development, implementation, testing, and deployment of advertising revenue prediction project
- Advertising Revenue Prediction Project
 - * Designed algorithmic framework and implemented revenue prediction based on Google advertising business data
 - * Implemented revenue predictions for daily, monthly, quarterly, and annual periods
 - * Identified peak revenue periods annually, completed comparative testing and deployment

BIGO - Algorithm Engineer - Internship

Algorithm Team Member

February 2019 – June 2019

- Completed audio fast clustering algorithm patent and implemented all code details
- Audio Fast Clustering Algorithm Patent
 - * Designed hash algorithm for comparing large volumes of short video audio within time constraints, tailored for BIGO's Like app audio characteristics
 - * Designed corresponding feature clustering algorithm, optimized time complexity based on business requirements
 - * Adapted algorithm for large-scale data comparison needs in business scenarios

The Hong Kong Polytechnic University - Research Assistant
Research Assistant (Exchange Student)

September 2018 – January 2019

- Served as a Research Assistant during exchange program, focusing on blockchain applications in supply chain management
- Blockchain-Driven Trusted Supply Chain System Research
 - * Investigated the potential of blockchain technology in enhancing supply chain trust and transparency
 - * Designed and implemented a blockchain-based supply chain tracking prototype

EDUCATION

Sun Yat-sen University
Computer Science and Technology

September 2015 – June 2019
GPA: 3.8/4.0

EXTRACURRICULAR ACTIVITIES

- Technical Director in SYSU ACM/ICPC Club — 2016 – 2017
- Organized algorithm lectures, programming contests for beginners, and school competitions