THOMAS W. CHANG

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SUMMARY

Full stack machine learning professional who delivers end to end solutions, from data collection, data preparation, training, and deployments in the Search, Ads, and NLP domains.   Lifetime learner who enjoys working collaboratively within and across teams.

TECHNICAL SKILLS

- ML Framework:
  - General: Scikit, SparkML
  - Ranking: XgBoost and LightGBM
  - NLP: FastText, Pytorch, Transformers, word2Vec, nltk
- Data: Spark, NRT, ElasticSearch, Redis, and SQL
- Service Framework: Flask, FastAPI, and Play
- DevOps: Docker, Kubernetes, Helm, and Google Cloud
- Language: Python, Scala, Java, and C++

PROFESSIONAL EXPERIENCE

EBAY - NLP Core Technology
Member of Technical Staff II   May 2020 - Current

- Contribute to Ebay NLP library which enables researchers to share NLP models and productionize on Kubernetes and offline training pipelines.   Features contribution includes deploy model to federated Kubernetes deployment, batch model inference in HDFS, and load testing framework.
- Trained Ebert-based Named Entity Recognition (NER) Pytorch models and deploy to production for online inferencing. Federated Kubernetes deployment achieves 4500 TPS. Tune model and services.
- Train FastText binary classifiers to support internal Ebay trust initiatives.

EBAY - Core Search
Technical Lead (Search and Ads)   Nov 2018 - May 2020

- Enhance ranking algorithm to maximize revenue between Cost Per Click (CPC) and Cost Per Sale (CPS). To support the new CPC program, I led a team of data scientists and engineers to build a pClick and revenue floor model.
- Build machine learning models to suggest item adrate guidance for Ebay sellers on the Promoted Listings program.
- As part initiative to change the search experience, explore search modules to help customers understand the inventory and make value tradeoffs.
- Improve search ranking algorithm with user segmentation features, which includes hand crafted features and embedding representations.
- Design and architect Spark Data Pipeline used for all search monetization data requirements. Pipeline was scaled to 40+ jobs, adopted by multiple projects, and contributed by data engineers, data scientists, and software engineers.

EBAY - Haito
Member Of Technical Staff I/II (Search and Recommendation Systems)   Jan 2016 - Nov 2018

- Recommendation: Worked on recommendation modules for the item and home page for the Ebay HaiTao Ebay website. Item based recommendation modules utilize a deep learning model to recommend items based on item similarities. Home page recommendation module leverages user view history to make personal recommendations via a collaborative filtering model. Final pipeline includes Airflow orchestration of ETL, ML training, and deployment.
- Recommendation: Worked on commerce Knowledge Graph for aspect recommendation and similar queries. Enrich knowledge graph with general knowledge from Wikidata. Create Spark ETL to ingest 450G of dense data, web service to handle client queries. Implement ontology mapping between wikiData and relevant nodes on the Ebay Knowledge Graph by levering Wordnet.
- Search ranking and relevance: Core member in designing and implementing a search engine leveraging structure search and various machine learning models. Components included recall, relevance, and machine learned ranking.
- Search pipeline: Write the near real time data pipeline for search listing index, which achieves a sustained 8,000 Elasticsearch updates/sec and is replicated across multiple international regions. Search index supports the entire 1

billion Ebay items. To ensure data integrity, drove an integration regression framework and various spark jobs used to validate data integrity of the data pipeline.
● Evangelize product division on adoption of Sumo Logic and New Relic. Coordinate among teams to standardize best practices and docker deployments across all teams onto the Google Cloud. Manage vendor relationships and expectations.
● Champion best practices so new team members can onboard efficiently and effectively.

SERVICENOW   Oct 2012 – Dec 2015
Senior Software Engineer
● Developed cloud infrastructure management software to enable customers to provision, discover, and apply change control to resources on Microsoft Azure and Amazon Web Services cloud.
● Mentored junior developers and helped new team members come up to speed.

LAWRENCE LIVERMORE NATIONAL LAB   Aug 2011 – Sep 2012
Computer Scientist
● Wrote simulation jobs for the National Ignition Facility, which is the world's largest laser facility dedicated to achieving fusion. Distributed jobs run on the lab's High Performance Computing Platform using Message Passing Interface (MPI), OpenMP, and MOAB, (a job scheduler).

APPLE   Jun 2009 – July 2011
Software Engineer
● Designed WiFi calibration models to optimize transmit power over operations modes and frequencies. Algorithm uses machine learning (regression analysis) to select calibration parameters to meet antenna power transmission requirements.
● Explore using models to predict Iphone hardware failures. Build a toolset to collect, analyze, and train models.

CREDENTIALS
MS, UC Berkeley (Controls and Systems)
BS, UC Berkeley
Stanford Advanced Project Management Certificate
Agile ScrumMaster Certificate