Uthaipon “Tao” Tantipongpipat

Machine Learning Engineer / AI Researcher

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SUMMARY

Machine learning engineer and researcher with 4 years of experience after a PhD. Led a team on ML development by planning and executing quarterly milestones in ranking and recommendation systems. Experienced in responsible AI / AI ethics at Twitter. Has driven successful cross-functional projects (resulting in 3+ billions press click-read) and has impacted company-wide engineers in applying research based on company data. Track record (10+) of top-tier peer-reviewed publications in ML, algorithms, and statistics. The research focuses on ML theory, ML fairness, and optimization, with 1st place award from the US government on differential privacy.

EXPERIENCE

Agoda, Bangkok, Thailand - *Lead Data Scientist* Jan 2023 – Now

- Implemented and optimized TensorFlow Decision Forest model, and transformed and optimized RNN with attention dataset, improving offline validation metrics by 1-2%.
- Initiated and led a research project to develop a user-specific parameter in the ranking model, integrating customer-loyalty components, resulting in 50% improvement in MSE for predicting customer loyalty and future profit.
- Engineered a CTR (click-through-rate) prediction model, reducing RMSE by 75%. Provided strategic insights to the advertising team for optimizing ad revenue from clicks.
- Designed and implemented a SparkScala job for daily front-end dataset monitoring, essential for model training. Created SQL alerts for anomaly detection and maintained comprehensive dashboards for dataset trends, user behaviors, and device metrics.
- Managed and strategized with managers, data scientists, and ML engineers on deployment design, decisions, and timelines of the project for the team’s milestones.

Twitter, remote US - *Machine Learning Researcher* Jun 2020 - Jan 2023

- Led Twitter’s image cropping algorithmic bias audit resulting in a published academic paper and $1.5M press ad equivalency and 3B readership from 500 news articles in 49 countries. Led to another follow-up work by team members resulted in additional $1.4M, 2.7B reads, and 800 articles from 47 additional countries, and contributed to the decision to remove the algorithm in production
- Proposed a 13-18% precision-recall video classification model improvement with no additional cost to partnering team to fix offensive misclassifications on Tweet topic annotations, and discovered correlation bias with demographics despite a lack of private individual data

- Established a data-driven guideline for company-wide engineers to adopt a inequality metric in A/B statistical testing, as well as winning business approval with company leadership that finally led to shipping the metric
- Provided statistical analysis to customer teams to evaluate and quantify bias in ML models; redesigned common ML statistical significance tests required for bias measurement
- Published two papers in social computing conference and one in data science journal

Microsoft, Redmond WA - *Research Intern* May 2019 - July 2019

- Implemented privacy guarantee on large-scale natural language processing models (RNNs and LSTMs) to protect against personal deidentification due to model usage
- Researched private correlation clustering algorithm, private submodular optimization, and surveyed literature for private stochastic gradient descent for training deep models

EDUCATION

Georgia Institute of Technology, Atlanta GA
PhD in Algorithms, Combinatorics, and Optimization (ACO). GPA 4.00/4.00 Aug 2016 - May 2020

University of Richmond, Richmond VA
BS in Mathematics, with Thesis (Algebraic Combinatorics). GPA 3.97/4.00 Aug 2012 - May 2016

University of Oxford, Oxford UK
Study Abroad Program in Mathematics and Computer Science. First Class. Oct 2014 - Jun 2015

SELECTED AWARDS

- **Impact Recognition** Award, CSCW (the social computing conference) 2021
- **Best Reviewers** of NeurIPS (top-tier machine learning conference) 2019
- **1st Prize** Award and **People's Choice** Award ($20,000 total), The Unlinkable Data Challenge, National Institute of Standards and Technology (NIST), US Department of Commerce 2018
- **Honorable Mention** (top 2.5%), William Lowell Putnam Mathematical Competition 2015
- **Bronze Medal** and **Honorable Mention**, Asia-Pacific Mathematics Olympiad (APMO) 2010, 2011
- **Gold** and **Bronze Medals**, IWYMIC International Mathematics Competition 2008, 2009

SKILLS

Technical: **General:** Responsible AI, model audit / model governance, cross-functional communications, differential privacy, statistics, ranking and recommendation.
Programming: Python (pandas, numpy, scipy), Scala, PySpark, ScalaSpark, SQL (BigQuery, Impala), Java, C++, MATLAB
Tools: Tensorflow, PyTorch, Kubeflow, DataBand, GCP, Hadoop, Git, Gitlab, Superset, Oozie, Grafana, CVXOPT, Mathematica, LaTeX

Languages: Thai (native); English (full proficiency)