Yuandong Zhang

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Education

University of California San Diego — Expected June 2027
M.S. in Computer Science — *San Diego, USA*

Duke University & Duke Kunshan University — May 2025
B.S. in Computer Science, GPA: 3.8/4.0, Cum Laude — *Durham, USA*

Skills

Languages: Python, JavaScript/TypeScript, Java, SQL, Swift
Frameworks: PyTorch, Scikit-learn, OpenCV, Dask, Apache Spark, FastAPI, React.js, Express.js, Node.js
Tools: Kubernetes, Docker, ArgoCD, Amazon EC2, MongoDB, Git

Experience

Transformer for Human Mobility Prediction | ***Duke Kunshan University*** — July 2024 – Oct 2025
- Designed a Transformer network achieving 95.97% SOTA accuracy on trip mode detection with only speed as input
- Created a Dask-based distributed data pipeline that transformed 4TB of GPS into training-ready features in <20 minutes
- Validated the network against ViT, LSTM, RNN, CNN baselines, achieving the best accuracy on Geolife benchmark
- Boosted cross-regional performance (Switzerland to China) from 80.53% to 86.13% by fine-tuning on 100 target trips

Carbon-Footprint Tracking App | ***Duke Kunshan University*** — Oct 2023 – Aug 2024
- Led a 7-student team to create an app for carbon footprint awareness in US and China using React.js
- Implemented real-time carbon accounting by exposing our trip mode detection network with Docker and FastAPI
- Drove in-app engagement up 50% across 1000+ articles via designing an item-based recommendation system
- Exceeded China recruitment target to 150% by securing data compliance and launching targeted social-media ads

Climate Misinformation on Twitter | ***Duke Nicholas School of the Environment*** — May 2023 – Jan 2024
- Separated climate believers from deniers on 1.2M Ohio-derailment tweets using a fine-tuned GPT-3 classifier
- Ingested Jan–Mar 2023 Twitter data under API rate limits using a fault-tolerant, rate-limited Python data pipeline
- Detected misinformation-heavy, politicized clusters with BERTopic on RoBERTa stance embeddings

Federated Black-box Prompt Tuning for LLM | ***Duke Athena AI Institute*** — Sept 2023 – Nov 2023
- Developed a prompt-projection network to reuse tuned prompts across heterogeneous LMs in a black-box setting
- Demonstrated cross-model prompt transfer from BERT/GPT-style models to LLaMA on standard NLP benchmarks

Projects

Margin-Aware ERP for Export Trading
- Designed and deployed a Enterprise Resource Planning (ERP) SaaS with MERN stack for an export trading firm
- Delivered <500ms margin lookups by adding MongoDB indexes and aggregation pipelines on purchase vs. sales data
- Provisioned a 2-node K8s cluster on AWS EC2 with ArgoCD, cutting deploy time by 80% while maintaining 99.9% uptime
- Centralized end-to-end order flow for 10+ factories and 50+ clients (300+ SKUs), all with margin-aware summaries

Bag of Visual Words Chinese Dish Classifier
- Developed a Bag of Visual Words representation for dish recognition by integrating SIFT keypoints into a BoW pipeline
- Achieved 100% accuracy on unseen dishes with BoVW + random forest classifier, outperforming CNN by 10%
- Automated contour-based dish segmentation in OpenCV, reducing per-image manual labeling effort by 95%
- Deployed on Raspberry Pi + camera to demonstrate real-time inference on edge devices.

Publications & Manuscripts

- **Yuandong Zhang**, Othmane Echchabi, Tianshu Feng, Wenyi Zhang, Hsuan-Kai Liao, Zhixuan Lu, and Charles Chang. Predicting Human Mobility Using Dense Smartphone GPS Trajectories and Transformer Models. Under review at *International Journal of Geographical Information Science*.
- Ding Ma, **Yuandong Zhang**, and Ji Nie. Amplifying Variability of the Southern Annular Mode in the Past and Future. Under review at *Geophysical Research Letters*.
- Yiming Li, Jingwei Sun, Yudong Liu, **Yuandong Zhang**, Ang Li, Beidi Chen, Holger R. Roth, Daguang Xu, Tingjun Chen, and Yiran Chen. Federated Black-box Prompt Tuning System for Large Language Models on the Edge. *MobiCom 2024*.