

Bingyuan Liu

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Summary

AI researcher and engineer with 10+ years across LLM/VLM post-training, multimodal understanding, computer vision, and recommender systems. At Amazon AGI, led the design and development of a synthetic data pipeline producing hundreds of millions of examples for VLM post-training, with key contributions to training tooling, data-mixture design, and evaluation. Shipped AI capabilities for Amazon Bedrock Data Automation. Author of 10+ peer-reviewed papers, including publications at CVPR, CVIU, and MedIA.

Work Experience

Amazon (AWS AI / Amazon AGI)

Vancouver, Canada

APPLIED SCIENTIST

Mar. 2023 - Present

- Led the design and development of an end-to-end synthetic data pipeline producing hundreds of millions of examples for document-understanding VLM post-training, spanning data generation, judging, filtering, and correction.
- Core contributor to the VLM post-training pipeline, with work spanning training tooling, data-mixture design, and evaluation; the resulting VLM achieved state-of-the-art performance on internal and public document-understanding benchmarks.
- Developed and shipped multimodal AI capabilities for Amazon Bedrock Data Automation, including structured information extraction from documents and natural images, and summarization of images and figures embedded in documents.

École de technologie supérieure (ETS)

Montreal, Canada

RESEARCH ASSOCIATE

Nov. 2020 - Mar. 2023

- Proposed margin-based label smoothing and class-adaptive methods for model calibration, resulting in two first-author CVPR papers (2022, 2023).
- Conducted image segmentation research resulting in two first-author MedIA papers; developed eye-disease screening solutions in collaboration with Diagnostics, Inc.

Coohom, Inc.

Hangzhou, China

ALGORITHM EXPERT (TECH LEAD, COMPUTER VISION)

May. 2018 - Mar. 2020

- Led the computer vision team in building an end-to-end image-to-3D furniture retrieval system for KuAiDesign, spanning model training, offline processing, and online serving.
- Led the creation and public release of *DeepFurniture*, a benchmark with 24K indoor scenes, 170K annotated furniture instances, and 20K unique 3D identities; also proposed a baseline method for the benchmark.

Qihoo 360, Co. Ltd.

Beijing, China

MACHINE LEARNING ENGINEER

Aug. 2017 - Apr. 2018

- Developed recommendation algorithms for Huajiao, a large-scale live-streaming platform.

Alibaba Group, Inc.

Hangzhou, China

SENIOR ALGORITHM ENGINEER

Apr. 2016 - Aug. 2017

- Built and shipped OCR models and systems for business documents.
- Developed object detection and text recognition components for Alibaba Cloud PAI.

Huawei Technologies, Co. Ltd.

Nanjing, China

SOFTWARE ENGINEER

Jul. 2015 - Apr. 2016

- Developed applied machine-learning solutions for enterprise partners, including China Mobile.

Education

Institute of Automation, Chinese Academy of Sciences

Beijing, China

PH.D. IN MACHINE LEARNING

2010-2015

Zhejiang University

Hangzhou, China

B.S. IN INFORMATION SCIENCE AND COMMUNICATION ENGINEERING

2006-2010

Selected Publications

- **The Devil is in the Margin: Margin-based Label Smoothing for Network Calibration.** CVPR 2022 · First author
- **Do We Really Need Dice? The Hidden Region-Size Biases of Segmentation Losses.** MedIA 2024 · First author
- **Reducing Distraction in Long-Context Language Models by Focused Learning.** arXiv 2024 · Second author