Hui Ding

Staff AI Research Scientist | Multimodal Generative Foundation Models

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SUMMARY

Staff AI Research Scientist with 6+ years of industry experience building and shipping generative foundation models at Meta, Adobe, and Amazon, spanning pretraining, mid-training, and post-training. At Meta Superintelligence Labs, works on the end-to-end post-training of **Muse Image and Muse Video**, which launched at **#2 on Arena** across text-to-image, single-image editing, and multi-image editing, and **#3** in text-to-audio-video. Also led mid-training and post-training of the unified image generation and editing model behind Meta AI's globally launched "Add Me" and "Remix Me" features. Previously worked on pretraining of Adobe Firefly Image 5 and Amazon Titan Image Generator. Focused on unified multimodal foundation models that bridge understanding and generation across text, image, video, audio, and beyond.

Expertise: Pretraining, mid-training & post-training (SFT, distillation, reward modeling, RL) · Diffusion models · Autoregressive multimodal LLMs · Unified understanding & generation · Image/video generation & editing

EXPERIENCE

Meta Jun 2025 – Present

Staff AI Research Scientist, Meta Superintelligence Labs Menlo Park, CA

Muse Image & Muse Video Meta's image and video generation models

Worked across the end-to-end post-training stack for Muse Image and Muse Video: supervised fine-tuning (SFT), distillation, reward modeling, and reinforcement learning (RL).

Arena rank at launch: **#2** Text-to-Image | **#2** Single-Image Edit | **#2** Multi-Image Edit | **#3** Text-to-Audio-Video

- **Unified Generation & Editing Model.** Led end-to-end mid-training and post-training of a single model unifying text-to-image generation, image editing, style transfer, face swap, and person insertion. Its personalization features "Add Me" and "Remix Me" launched globally on Meta AI Vibes in Nov. 2025.

Adobe Jun 2024 – Jun 2025

Senior Applied Scientist, Firefly San Jose, CA

- **Editing Foundation Model.** Led development of a unified generation and editing framework spanning image and video, supporting text-to-image/video generation, inpainting/outpainting, and edge-map-conditioned generation.
- **Unified Text-to-Image/Video Foundation Model.** Developed sparse architectures with Mixture-of-Experts (MoE) and sparse attention; contributed to the pretraining of Firefly Image 5.
- **Multimodal LLM for Unified Understanding & Generation.** Researched autoregressive generation of discrete text tokens and continuous semantic tokens, rendered by a diffusion decoder.
- **Mentorship.** Co-mentored an Adobe Research intern on UniReal, a universal image generation and editing model (CVPR 2025, Highlight).

Amazon 2020 – 2024

Senior Applied Scientist, AGI Foundations; previously Applied Scientist, AWS AI (Textract, Rekognition) Santa Clara, CA

- **Text-to-Image/Video Generation.** Core contributor to the pretraining of Amazon Titan Image Generator, launched on Amazon Bedrock at AWS re:Invent 2023.
- **Document Understanding.** Developed the core model for Amazon Textract's Document Key-Value Pair Detection, launched to production; initiated model customization via parameter-efficient transfer learning to adapt it to new document types; developed the core model for document forgery detection.
- **Facial Analysis.** Contributed to the launches of Amazon Rekognition's Face Liveness Detection, Facial Attribute Detection, and Face Recognition.
- **Mentorship.** Mentored an intern on PolyFormer (referring image segmentation via vision-language autoregressive modeling, CVPR 2023); co-mentored an intern on deepfake detection via self-consistency learning (ICCV 2021, Oral).

EDUCATION

Ph.D., Electrical and Computer Engineering, University of Maryland, College Park

Advisor: Prof. Rama Chellappa

PUBLICATIONS

CVPR 2025 **Highlight**
UniReal: Universal Image Generation and Editing via Learning Real-world Dynamics
X. Chen, Z. Zhang, H. Zhang, Y. Zhou, S. Y. Kim, Q. Liu, Y. Li, J. Zhang, N. Zhao, Y. Wang, **H. Ding**, Z. Lin, H. Zhao

CVPR 2023
PolyFormer: Referring Image Segmentation as Sequential Polygon Generation
J. Liu*, **H. Ding***, Z. Cai, Y. Zhang, R. K. Satzoda, V. Mahadevan, R. Manmatha (*equal contribution)

ICCV 2021 **Oral**
Learning Self-Consistency for Deepfake Detection
T. Zhao, X. Xu, M. Xu, **H. Ding**, Y. Xiong, W. Xia

IJCB 2020 **Oral**
Occlusion-Adaptive Deep Network for Robust Facial Expression Recognition
H. Ding, P. Zhou, R. Chellappa

AAAI 2018 **Oral**
ExprGAN: Facial Expression Editing with Controllable Expression Intensity
H. Ding, K. Sricharan, R. Chellappa

AAAI 2018 **Spotlight**
A Deep Cascade Network for Unaligned Face Attribute Classification
H. Ding, H. Zhou, S. K. Zhou, R. Chellappa

arXiv 2017
Semi-Supervised Conditional GANs
K. Sricharan, R. Bala, M. Shreve, **H. Ding**, K. Saketh, J. Sun

FG 2017
FaceNet2ExpNet: Regularizing a Deep Face Recognition Net for Expression Recognition
H. Ding, S. K. Zhou, R. Chellappa

ICC 2012
Performance of Multi-antenna Systems with Fixed Gain AF Relay in the Presence of Co-Channel Interference
H. Ding, C. He, L. Jiang

Comm. Lett. 2012
Performance Analysis of Fixed Gain MIMO Relay Systems in the Presence of Co-Channel Interference
H. Ding, C. He, L. Jiang. *IEEE Communications Letters*, 16(7):1133–1136

PATENTS

- **System and Method for Semi-Supervised Conditional Generative Modeling Using Adversarial Networks**
  U.S. Patent 11,741,693 B2 (PARC, granted Aug. 2023) | S. Kallur Palli Kumar, R. Bala, J. Sun, **H. Ding**, M. A. Shreve
- **Method and System for Artificial Intelligence Based Medical Image Segmentation**
  U.S. Patent 11,393,229 B2 (Siemens Healthineers, granted Jul. 2022) | S. K. Zhou, M. Chen, **H. Ding**, et al.

HONORS & SERVICE

- **Reviewer.** CVPR, ICCV, ECCV, NeurIPS, ICLR, ICML; IJCV, IEEE T-PAMI.
- National Scholarship for Graduate Students, China (top national scholarship for graduate students).
- First Prize, Kwang-Hua Scholarship, Kwang-Hua Education Foundation.
- First-Class Academic Excellence Scholarship, Shanghai Jiao Tong University.