Xavier Thomas

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Education

Boston University   Sept 2023 - May 2025
Master of Science in Artificial Intelligence (Thesis Track)   Advisor: Prof. Deepti Ghadiyaram

Manipal Institute of Technology   July 2018 – Aug 2022
Bachelor of Technology in Electronics and Instrumentation, Minor in Computational Intelligence

Research & Work Experience

Boston University   Jan 2024 - Present
Graduate Research Assistant | Advisors: Prof. Deepti Ghadiyaram, Prof. Thomas Gardos
- **Edubotics AI:** Created and maintaining an **open-source Python package** for creating customized, research-backed LLM-based applications; built and deployed a digital teaching assistant for Boston University courses. ⊙ Code | 🐍 PyPI
- **MS Thesis:** Investigating **Vision-Language Models (VLMs)**, and developing improved visual feature representations. Additionally, exploring how features from diffusion models can improve VLM performance.

ShareChat   July 2022 - June 2023
Machine Learning Engineer Intern | Content and User Understanding Team
- Integrated an **advanced computer vision pipeline** into **production**, improving both content classification and moderation capabilities on ShareChat (180M+ MAUs) and Moj (160M+ MAUs).
- Designed **MAViC, a Multimodal Active Learning algorithm for Video Captioning** that reduces annotation effort using our novel acquisition function, integrating semantic similarity and uncertainty from visual and language modalities. 📄 Paper
- Developed an **AI-powered content creation tool** for seeding content, and engineered an **Automated News Dashboard** to compile daily news into genre-specific video snippets, improving engagement and retention.
- Integrated **Natasha, an AI assistant**, into ShareChat's messaging service, leading to increased user engagement.

Searce Inc   Jan 2022 - July 2022
Machine Learning Engineer Intern
- Implemented a chatbot to automate IT helpdesk tasks like user verification, account unlocking, and password resets.
- **Led the technical development** and guided client discussions, collaborating with a team of three engineers.

Serre Lab, Brown University   Sept 2021 - May 2022
Research Intern | Advisors: Prof. Thomas Serre, Dr. Victor Boutin
- Designed a **novel framework for evaluating one-shot generative models** on recognizability and diversity, enabling systematic comparisons on the Omniglot dataset, and providing new insights into model performance across various architectures.
- Applied this framework to benchmark representative generative models against human performance. ⊙ Code | 📄 Paper

Massachusetts Institute of Technology   Jan 2022 - July 2022
Research Assistant | Advisors: Dr. Abhimanyu Dubey
- Created a **novel algorithm to recover domain information** by removing class-specific noise from features, enabling the development of **privacy-preserving, domain-adaptive classifiers** without requiring any domain labels for training data.
- Achieved **state-of-the-art performance**, outperforming existing methods that do not utilize domain labels. ⊙ Code | 📄 Paper

Publications, Preprints, and Working Papers

MAViC: Multimodal Active Learning for Video Captioning
Gyanendra Das, **Xavier Thomas**, Anant Raj, Vikram Gupta | 📄 Paper

Diversity vs. Recognizability: Human-like generalization in one-shot generative models (**NeurIPS**, 2022)
Victor Boutin, Lakshya Singhal, **Xavier Thomas**, Thomas Serre | ⊙ Code | 📄 Paper

Adaptive Methods for Aggregated Domain Generalization
Xavier Thomas, Dhruv Mahajan, Alex Pentland, Abhimanyu Dubey | ⊙ Code | 📄 Paper

Skills

Languages: **Python**, MATLAB, C++, SQL, HTML/CSS, TypeScript, Node.js

Tools & Technologies: SQLite, Redis, Streamlit, Django, **FastAPI**, **Chainlit**, **LangChain**, **Hugging Face Transformers**, NumPy, **PyTorch**, Accelerate, Docker, Kubernetes, Jenkins, Spinnaker, Google Cloud, Git, Jira, gRPC, Open MPI