Paris, France
bissmellabahaduri@gmail.com

Bissmella Bahaduri

https://bissmella.github.io/
https://github.com/Bissmella

Education

- **Master-2 MVA (Math, Vision, Apprentissage),** ENS Paris-Saclay, Paris, France . **2024–2025**
- **Master Informatics,** University of Toulouse-Capitole, Toulouse, France. **2021–2023**
- **Courseworks:** LLM, Reinforcement Learning, Robotics, Computation statistics, Web Development, Databases & SQL, Software Engineering, Business Process Analysis, Project Management & Agile Methodologies

Engineering and Professional Experience

Research Intern **ISIR - Sorbonne University** **April 2025 – Sept. 2025**

- Fine-tuned LLMs (Mistral 7B, Llama 1B) using Reinforcement Learning (RL) for taking actions in agentic environment
- Designed an intrinsic reward based RL algorithm for fine-tuning LLM on agentic game environment and showed its better performance using Llama 1B model
- Fin-tuned VLM models (Qwen VL 3B) for sequential decision-making in agentic environments using reinforcement learning and supervised finetuning, using **Python, Pytorch, HF Transformers, HF Datasets, HF TRL**
- Built end-to-end pipeline for VLM finetuning: data collection → finetuning → inference and action prediction
- Collected and curated 10k+ vision-language-action training examples for agentic action prediction

ML Research Engineer **Sorbonne Paris-Nord University AI lab** **Oct. 2023 – sept. 2024**

- Built and optimized computer vision (CV) model for one-shot object recognition achieving 5% performance improvement while reducing memory and flops using **Python, Pytorch, Transformers**
- Designed automated data collection and annotation pipeline processing 5k+ images with 100k annotations using **Python, Pytorch, HF Datasets** which led to creation of a research-grid dataset
- Implemented comprehensive testing framework for model architectures ensuring consistency and fair comparison of different object recognition models
- Led code reviews and pull request management for team of 3-4 research interns, ensuring code quality and maintainability of shared CV model library

Computer Vision Intern **L2TI - Sorbonne Paris-Nord University** **Apr. 2023 - Aug. 2023**

- Applied and fine-tuned segment anything (SAM) model for object recognition task, designed and implemented vision transformers based models for object recognition using **Python, Pytorch, and Transformers**
- Designed and implemented Vision Transformer-based models for object recognition

Open source, projects, and Publications

- **Top 3 in Gradium & Pyannote iterate hackathon (Dec. 2025)** Implemented a personal voice assistant that manages, and updates tasks, and notes just over a phone call and speech.
- **Contribution to Hugging Face diffusers: (Nov. 2025)** Efficient implementation of unified sequence parallelism in Hugging Face diffusers. Wrote its corresponding test script, benchmarking and comparison with other methods.
- **Realtime meeting copilot:** A web application integrating small LLM inference, speech to text model inference, and RAG for recording, storing, and prompting meeting minutes. Tech: Python, Transformers, Langchain, Typescript
- **Bahaduri, B.**, Ming, Z., Feng, F., & Mokraoui, A. Multimodal Transformer Using Cross-Channel attention for Object Detection in Remote Sensing Images. In ICIP (oral), 2024.
- **Bahaduri, B.**, Talaoubrid, H., Feng, F., Ming, Z., & Mokraoui, A. Indirect Attention: Turning Context Misalignment into a Feature. Arxiv-preprint, 2025.