Jakhongir Saydaliev

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jakhongir-saydaliev-0103 Jakhongir Saydaliev

Education

MSc. in Data Science Sep. 2023 - Aug. 2026
EPFL Lausanne, Switzerland
- Avg. Grade: 5.54/6.0

BSc. in Computer Engineering Sep. 2019 - Jul. 2023
Politecnico di Torino Turin, Italy
- Avg. Grade: 109/110
- ToPoliTo scholarship (ranked 8th in the admission)

Research Experience

ML Research Intern Sep. 2025 - Feb. 2026
Logitech Lausanne, Switzerland
Topic: Computer Use of LLM Agents
- Creating a 2-step scalable pipeline to collect GUI grounding dataset from videos using up to 7B open-source models.
- Training 4B-7B vision language models for GUI grounding task on our annotated dataset.

Research Student Assistant June. 2025 - Present
LINX, EPFL (Prof. Michael Gastpar) Lausanne, Switzerland
Topic: Efficient Reasoning for LLMs Code
- Analyzing the reasoning traces of 7B-32B reasoning models with respect to metrics such as entropy and certainty.
- Training a single-layer transformer model to predict the early stopping position during inference.
- Improved the performance on MATH-500 dataset by 2-3% while cutting the inference tokens by about half.

ML Summer Research Intern Jun. 2025 - Sep. 2025
SwissAI Lausanne, Switzerland
Topic: Multimodal reasoning through Multi-turn RL Blog, Code
- Extended the VeRL framework to support image-manipulation during multi-turn RL training.
- Trained 3B VLMs with RL in the multi-turn settings on 4 NVIDIA H100 GPUs on our synthetic data using VeRL.
- Designed rotation-based reward function, which increased by 20% during training.

Research Student Assistant Jun. 2024 - Jun. 2025
NLP Lab, EPFL (Prof. Antoine Bosselut) Lausanne, Switzerland
Topics: Multilingual NLP & Multimodal Reasoning Paper, Code
- Trained 7B large multimodal models (LMMs) for text-image interleaved generation on reasoning datasets, e.g. ResQ.
- Trained 3B LMMs for image-to-text reasoning on 8 NVIDIA A100 GPUs for 15 days with 10 VQA datasets.
- Implemented Multi-GPU training with distributed data parallel (DDP).
- Trained a 287M linear language identification model with a dual objective for 2099 languages from scratch.
- Improved the language identification of the low-resource languages by 3.2 F1.

Research Student Assistant Feb. 2024 - Sep. 2024
DHLAB, EPFL (Prof. Frédéric Kaplan) Lausanne, Switzerland
Topic: QA system with LLM Agents Paper, Code
- Fine-tuned 7B large language models (LLMs) for historical question-answering tasks.
- Designed a text-to-SQL pipeline using CodeS-7B model for table-based question-answering task.
- Built an LLM-based agentic system using Llama-3 70B and GPT-4 for table-based question-answering task.

Work Experience

Data Analyst Nov. 2022 - May. 2023
Fater Pescara, Italy
- Analyzed big data with 20-30M of rows to extract insights using python pandas and SQL.
- Implemented data parallelization with python to parallelize the data execution across multiple CPUs.
- Contributed to the development of customer churn prediction model

IoT Engineer Oct. 2021 - Feb. 2022
Links Foundation, Turin, Italy
- Developed an interface to visualize the location of IoT devices using MQTT with python and Thingsboard

Teaching Experience

Teaching Student Assistant Fall, 2024
Applied Data Analysis, EPFL

- Advising students on the design and the implementation of their projects.
- Most popular Information and Communication (IC) MSc course in Fall 2024, with 700+ students enrolled.

Publications

[1] Negar Foroutan[*], **Jakhongir Saydaliev[*]**, Ye Eun Kim, and Antoine Bosselut. Conlid: Supervised contrastive learning for low-resource language identification. *Under review at **EACL**, Won the shared task at WDMQS at **COLM***, 2025. https://arxiv.org/abs/2506.15304. ([*]Equal contribution).

[2] Tristan Karch[*], **Jakhongir Saydaliev[*]**, Isabella Di Lenardo, and Frederic Kaplan. Llm agents for interactive exploration of historical cadastre data: framework and application to venice. ***Computational Humanities Research***, 1:e11, 2025. https://arxiv.org/abs/2505.17148. ([*]Equal contribution).

Open-Source Contributions

Apertus 2025
Links: Paper, Hugging Face
I was a part of the Apertus team through my ConLID project for language identification.

INCLUDE (ICLR Spotlight) 2025
Links: Paper, Dataset
I have helped collect dataset for Uzbek language.

Selected Projects

Mixed-modal Reasoning 2025
Links: Blog, Code, Technical Report
We explore three multimodal CoT paradigms: Multimodal-to-Multimodal, Text-to-Multimodal, and Multimodal-to-Text. We find that image generation during reasoning often harms performance, while Multimodal-to-Text with visual grounding improves the results when trained with GRPO (RL algorithm).

GalactiTA: AI-Driven Solutions for Scientific Question Answering 2024
Links: Blog, Technical Report
We first collected multiple-choice question-answering (MCQA) datasets from scientific fields, then fine-tuned the Galactica-1.3B model for the question-answering task, followed by DPO training. Next, we implemented RAG tuning, which integrates external knowledge and enhances performance by 11.52%.

A recipe for a successful tech-review channel 2023
Links: Website, Code
Causal Analysis of Tech channels' progress on YouTube using the videos published between May 2005 and October 2019. Through this analysis, we have identified several success factors of tech channels.

Awards and Scholarships

- 2^{nd} in a Hackathon on efficient LLM training, Switzerland, 2025
- 1^{st} in Lauzhack Hackathon on satellite imagery with LLMs and Computer Vision, Switzerland, 2024
- KTH Scholarship, awarded to 2.7% of applicants, Sweden, 2023
- ToPoliTo Scholarship, ranked 8^{th} in the university admission, Italy, 2019

Relevant Coursework

Topics in NLP, Modern NLP, Machine Learning, Applied Data Analysis, Image Analysis and Pattern Recognition, Artificial Neural Networks and Reinforcement Learning, Visual Intelligence, Systems for Data Management and Data Science, Operating Systems, Object Oriented Programming, Algorithms and Programming, Computer Architecture.

Technical Skills

Deep Learning Frameworks: PyTorch, Transformers (HuggingFace), vLLM, SGLang, VeRL
Data Science: Pandas, NumPy, Matplotlib, Seaborn
HPC Schedulers: SLURM, RunAI