TIAN CHENG "RICCARDO", XIA

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WORK EXPERIENCE

Research Intern National Institute of Informatics, Tokyo, Japan July 2025 - Jan 2026

- Designed a multi-agent LLM + RAG pipeline using OpenAI and open-source models deployed with vLLM for automated scientific paper generation, achieving 100% citation consistency and improving factual grounding, leading to the acceptance of 2 papers at the `Agents4Science` conference held by Stanford University.
- Co-designed and annotated a multimodal dataset (image, text, and tables) for scientific claim verification with 1664 samples extracted from 180 papers, which has been released for the `SciClaimEval` shared task.
- Built an evaluation framework served using vLLM on a cluster of 8 NVIDIA A100 GPUs to assess the adversarial effects of specific linguistic patterns on LLMs under different initialization and quantization conditions.

Research Intern SmartData Research Group, Bologna, Italy Apr 2023 - Sept 2023

- Surveyed LLM applications in biomedical NLP, which resulted in an internal technical report that guided the research direction of the group.
- Designed a reliability-focused biomedical summarization pipeline with fine-tuned transformers, which achieved a +5% improvement in ROUGE and BERTScore on the state-of-the-art and led to the publication of a journal paper.

IT/IS Office Intern Toyota Material Handling Manufacturing, Bologna, Italy Dec 2019, July 2019, Feb 2019

- Automated SQL reporting pipelines and assembly-line data tasks using Bash, PowerShell, and Python scripts.
- Audited network infrastructure across the production plant and documented rack connectivity.

EDUCATION

M.Sc. in Artificial Intelligence University of Bologna, Italy Mar 2026

Thesis title: A Self-Supervised Attribution Method for Explaining Neural Networks
Graduation grade: 110/110 with honours GPA: 29.6/30 (top 5%)

B.Sc. in Computer Science University of Bologna, Italy 2023

Thesis title: Subtopic-Oriented Biomedical Summarization using Pretrained Language Models
Graduation grade: 110/110 with honours GPA: 29.52/30 (top 5%)

SKILLS

Core Focus	LLM fine-tuning, Multi-agent systems, RAG, Multimodal models, Explainable AI
ML Frameworks	PyTorch, TensorFlow, HuggingFace, Scikit-learn, vLLM, Ollama
RAG Frameworks	LangChain, LangGraph, Pinecone
Infrastructure	AWS, Google Cloud, Docker, Ansible, GitHub Actions, GitLab Runners, Jenkins
Backend/API	FastAPI, Flask, NodeJS, SQL, MongoDB
Languages	Python, C, C++, Java, JavaScript, TypeScript, Kotlin

ACHIEVEMENTS

1st Place at LauzHack 2024, BMS Challenge EPFL, Lausanne, Switzerland `Project repository`

Developed an explainable time-series forecasting model using Gaussian Processes and Shapley values to predict pharmaceutical demand, ranking 1st out of 12 teams in the Bristol Myers Squibb 24 hours hackathon challenge.

1st Place at Tablut AI Agent Challenge University of Bologna, Italy `Project repository`

Designed and developed an AI player for the asymmetric board game Tablut using adversarial search and heuristic evaluation. The player ranked 1st out of 10 agents.

SELECTED PROJECTS

Neural Networks from Scratch `GitHub`

Implemented of the primitives of a deep learning framework (automatic differentiation, common neural network layers, loss functions, and optimizers) from scratch using Numpy only, focusing on modularity and maintainability.

Optimisation Programming for Multiple Couriers Planning `GitHub`

Modelled the Capacitated Vehicle Routing Problem using CP, SAT, SMT, and MILP (MiniZinc, OR-Tools, Z3, Gurobi) and built a GitHub Actions CI/CD pipeline for automated correctness verification and performance benchmarking.

Street Anomaly Segmentation `GitHub`

Designed a computer vision framework to detect out-of-distribution objects in urban driving scenes by leveraging vision transformers without needing supervision, achieving a +17% improvement in AUPR over prior baselines.

Homelab Proxmox Cluster

Personal Proxmox cluster consisting of two mini computers and a NAS. Used to experiment with distributed systems and to self-host daily services (DHCP, DNS, VPN, password manager, cloud storage, Git server, ...).