

Isac Pasianotto

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Education

- PhD** **University of Trieste**, Applied Data Science and Artificial Intelligence Trieste, Italy
 • Working on "*Converged computing: environments and technologies for hybrid HPC and Kubernetes infrastructure*" research project Nov 2024 – present
- MSc** **University of Trieste**, Data Science and Scientific Computing Trieste, Italy
 • Graduated with a 110/110 cum laude Aug 2022 – Sept 2024
- BSc** **University of Trieste**, Statistics and Informatics Trieste, Italy
Aug 2019 – July 2022

Experience

- Science Park**, Intern Trieste, Italy
Aug 2023 – Apr 2024
- Worked on user authentication and authorization in a cloud environment
 - Developed a solution based on LDAP and Kerberos for authenticating IdM's users inside a Kubernetes pod
 - Mainly used technologies: LDAP, Kerberos, Kubernetes, Vagrant, Libvirt, Docker, Podman, Ansible

Personal Projects

- dask-bench**  2023 – 2024
 Developed a benchmarking tool based on Dask to compare performance of different Dask clusters.
- Compatible with both SLURM and Kubernetes schedulers
 - Used to assess the overhead of the Kubernetes container orchestration system on the same hardware
 - Based on the concept of Weak Scaling, evaluating both Dask Arrays and Dask DataFrames
- 2048-DRL**  2023 – 2023
 Developed a Deep Reinforcement Learning agent, which plays the 2048 game.
- Implemented the DQN algorithm
 - Used [PyTorch](#)  framework to move the train process to the GPU
 - Implemented many epsilon-greedy strategies to balance the exploration-exploitation trade-off
- Federated Learning**  2024 – 2024
 Simulated a federated learning environment with the MRI dataset.
- Make the simulation both vertical and horizontal scalable
 - Used a refiend version of the AlexNet to perform the image classification task
 - Implemented the possibility of umbalance both the proportion of classes among the clients and the cardinality of the dataset among the clients

Contributions Projects

- virtualorfeo**  2023 – 2024
 Testing environment, based on Vagrant and Ansible
- Integrated the FreeIPA IDM to the virtualorfeo project
 - Enhanced the SLURM configuration in the Kubernetes pod to use LDAP+Kerberos for authentication against the IPA server
- slurm-helm**  2023 – 2023

Helm chart for the SLURM HPC scheduler, inside a Kubernetes cluster

- Updated and refiend the container images
- Improved the configuration to integrate in the virtualorfeo project

[orfeokuboverlay](#)

2024 – 2024

Kubernetes testing environment

- Integrated Authentik as a SSO solution
- Configured Authentik to query the FreelPA server for users
- Configured OIDC connection in the MinIO service

Certifications

[NVIDIA Deep Learning Institute](#)

Oct 2024 – Oct 2024

Data Parallelism: How to Train Deep Learning Models on Multiple GPUs

Languages

English: Full professional proficiency in written and oral communication; experience with technical writing of software documentation

Italian: Native proficiency (mother-tongue)

Volunteering

AI2S: meber of the Artificial Intelligence Student Society (AI2S), a student-led organization which operates mainly in the Trieste Area (meber since 2024)