Alessio Tuscano

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Subject: Application for Erasmus+ Traineeship

Dear Selection Committee,

My name is Alessio Tuscano and I am currently pursuing a Master's Degree in Physics of Data at the University of Padua. I am applying to the Erasmus+ Traineeship Programme to further advance my expertise and contribute to research in an international setting, with a particular interest in computational physics, high-performance computing (HPC), and scientific computing within complex systems.

During my studies, I developed a strong interest in computational physics and scientific programming, working with GPU acceleration (CUDA), neural networks, deep learning, parallel computing, and FPGA architectures. My bachelor thesis introduced me to building scientific datasets for machine learning, while my master's projects allowed me to further integrate theoretical knowledge with advanced computational skills.

Through both individual and group projects, I have focused on optimizing scientific code and improving the efficiency of research workflows. I particularly enjoy transforming slow or complex simulations into fast, reliable tools that enable new scientific results—such as making simulation-based inference feasible by accelerating data generation from weeks to hours.

This combination of practical experience and theoretical foundation has shaped my approach: I strive to support research teams by making their computational work more effective, while continuing to learn and innovate in the field.

I believe that working in an international research group would allow me to broaden my perspective, learn new methodologies, and contribute actively to collaborative projects. It will be a key aspect in the start of my career as a researcher in HPC and computational physics.

Beyond academics, I am eager to immerse myself in a new cultural and scientific environment. Having always commuted from my hometown to Padua, I realized that truly experiencing a city requires living it fully. With this traineeship, I hope not only to grow through research and collaboration with international peers, but also to embrace daily life in a new city—making the most of both the lab and the local culture.

With this traineeship, I hope to contribute my computational and theoretical skills to a stimulating research project. I am flexible regarding the timing and duration of the traineeship as long as the research is stimulating enough and I do a satisfying job both for me and the team.

Thank you very much for your consideration.

Sincerely,

Alessio Tuscano