CALLS AND EVENTS

ERASMUS+ (OUTGOING MOBILITY FOR STUDY PURPOSES)

The call for the 2023/2024 International Mobility for study has been issued.

The Erasmus Programme offers support for mobility of students within European programme countries (KA131) as well as within a selection of Extra-UE partner countries (KA171). All Politecnico di Milano students apply in the "International mobility for study" section of their Online Services.
After selection for the programme, the host university has to accept the students for mobility, so for PhD candidates it is advisable to make contact with a research group in advance, to plan the visit.

For general information about the Erasmus Programme, for the Call and for the lists of destinations available to PhD students please visit the webpage
https://www.polimi.it/en/campuses-and-services/international-mobility/study-abroad/erasmus-and-other-programmes/1-how-to-apply

For further administrative information please contact bando-mobilita@polimi.it
(please specify that you are a PhD student)

Deadline for application: 11th January 2023 (12:00 midday)

STARTING COURSES – DOCTORAL PROGRAMMES

PHD IN *INFORMATION TECHNOLOGY*

ADVANCED RESEARCH TOPICS IN CYBERSECURITY
Prof. Michele Carminati

The course will focus on open research challenges and themes, to transmit the research methods of the field of computer security the existing threats and attack methodologies the open research challenges. The course will deal with most of the cutting edge research challenges in designing a secure system, ranging from application-level security to host and network security. However, differently from the courses offered at the M.Sc. level, we will cut short on the details of implementation, and add open research challenges and themes. Therefore, the course can be profitable even for students who already took courses on cryptography or security during the earlier levels of study.

From 12th to 30th January 2023

ADVANCED TOPICS IN DEEP LEARNING: THE RISE OF TRANSFORMERS
Prof. Matteo Matteucci

Starting from the seminal work - Attention is all you need - the course aims at presenting different perspectives on the Transformer deep learning model introduced by Google in 2017. This model originally introduced to solve the computational limits of recurrent neural models in natural language processing (NLP) has shown how (self) attention plays a fundamental role also in other domains such as images and time series. Transformers will be presented from a theoretical and practical perspective in the different data domains in which they have nowadays achieved the state of the art performance: Natural Language Processing, Image Understanding, and Time Series Analysis.

From 23rd January to 1st February 2023

DATA MANAGEMENT AND ANALYSIS FOR COMPUTATIONAL BIOLOGY
Prof. Pietro Pinoli

The course provides an introduction to Computational Biology from a Bioinformatics and Data Science perspective. We overview molecular biology concepts and DNA/RNA sequencing techniques; then, current bioinformatics data management technology and algorithmic standards are presented, hinting at new approaches for genomic computing challenges. The second part provides a viral genomics primer and focus on bioinformatics and data/knowledge management approaches to capture insights on the COVID-19 pandemic. Intended audience: PhD students of DEIB (but also CHEM, MAT and other departments) who focus their research on biological problems and students who wish to broaden their understanding of genomic challenges.

From 10th to 26th January 2023

HYBRID SYSTEMS
Prof. Maria Prandini

Mission is 1) to provide basics of statistical methods in signal processing and supervised classification of discrete classes by following a pragmatic approach, 2) to illustrate the methodology to approach some broad-interest problems. After fundamentals, some topics will be agreed with attendees to guarantee that the majority of the students could broad their cultural knowhow still being focused to their PhD research area. Exam can be based on the use of analytical tools from statistical signal processing and deep learning to solve one topic of the ongoing research within the PhD thesis as proposed by the students.

From 10th to 27th January 2023

QUANTUM INFORMATION THEORY
Prof. Luca Barletta

The aim of this course is to develop a basic understanding of quantum mechanics concepts which will serve as a basis to answer some fundamental questions regarding data compression on quantum media and information transmission over quantum channels. Analogies with classical Shannon theory will be made, in order to better understand the quantum Shannon theory. This course will give a chance to be initiated to a very exciting cutting-edge research field, which will find application and will influence diverse research fields

From 9th to 31st January 2023

SWITCHING ARCHITECTURES AND FORWARDING ALGORITHMS
Prof. Guido Maier

The course teaches switching networks and algorithms for packet processing through a methodological approach, mainly addressing applications for datacenters and high-performance packet-switching equipment.
Fundamental concepts about the internal architectures of routers and switches and about interconnection networks for datacenters are given. The course focuses on the approaches and methodologies used to carry out the functions of switching and packet processing. Switching theory is explained to understand the most common interconnection structures. Efficient algorithms for address look-up, packet-flow classification, and buffering management are presented

From 26th January to 17th February 2023

THE DIGITAL IMAGING PIPELINE: FROM PHOTONS TO MODERN CAMERAS
Prof. Giacomo Langfelder

The goal of the course is to introduce basic and advanced concepts of the so-called Digital Imaging Pipeline, including optics, electronics, and color science for digital imaging applications. Digital imaging systems are currently employed in professional cameras (DSCs), consumer goods (smartphones, tablets…), automotive applications (front and rear cameras), biomedical applications (various imaging-based analysis) and further widespread applications are envisioned in the same fields or in other fields if performance are improved. The course therefore, starting from a historical background and state-of-the-art technologies, highlights current limits and traces guidelines for novel approaches in terms of future technologies and sensor working principle.

From 16th January to 7th February 2023

PHD IN *MECHANICAL ENGINEERING*

AI APPLICATIONS TO INDUSTRIAL ROBOTICS
Prof. Francesco Braghin

The course will focus on the development of intelligent manipulators in the industrial robotics context.

From 11th January 2023

METHODS FOR HEALTH MONITORING AND PROGNOSIS OF ENGINEERING SYSTEMS SUBJECT TO DEGRADATION
Prof. Claudio Sbarufatti

The course introduces different methods for the analysis of real-time data aiming the diagnosis and prognosis of systems subject to degradation in a realistic environment.

From 17th January 2023