AREA OF RESEARCH - SCIENCE AND TECHNOLOGY

SCHOLARSHIPS FUNDED THROUGH EUREKA PROGRAM

RESEARCH TOPICS LIST

N. Prog.	Title	Area of Research	PhD Curriculum	Company	Tutor UNICAM
1	Sviluppo di nuovi metodi di tipo macchine learning per la gestione del rischio in finanza delle energie rinnovabili - Development of new methods of learning type machines for risk management in finance renewable energy	Science and Technology	Physics; Mathematics	FinLABO SIM SpA Via Corso Persiani 45 - Recanati TUTOR: Anselmo Pallotta	Carlo Lucheroni
2	Simulazione agli elementi finiti delle prestazioni termo-fisiche di sistemi utilizzati per la produzione di energia termica - Finite elements simulation of the thermo-physical performance of systems used for the production of thermal energy	Science and Technology	Physics	LAMINOX srl Zona Industriale Callarella 261/263 - Sarnano (MC) TUTOR: Luigi Rafaiani	Nicola Pinto
3	Progettazione e sviluppo di dispositivi gesture-driven per lôambient assisted living - Design and development of gesture-driven devices for ambient assisted living	Science and Technology	Mathematics	PICCHIO SpA sede operativa di Ascoli Piceno, Via del Commercio 45 TUTOR: Francesco Di Pietrantonio	Maria Letizia Corradini & Roberto Giambò
4	Diagnostica nel restauro e adeguamento software tecnico da Eurocodice alle normative turche - Diagnostics in the restoration and upgrading of a software from Eurocode to the Turkish regulations	Science and Technology	Computer Science: Research topic on Innovative technologies, smart housing and industrial design: structural engineering and control	Società Sibillina Dimora srl Via Capocastello 40 - San Ginesio (MC) TUTOR: Giuseppe Bocci	Andrea Dall'Asta
5	A formal and easy-to-use domain specific language to support the implementation of sensor and actuator networks (WSANs)	Science and Technology	Computer science	S.A.A.I.P. PROIETTI (Studio Associato Immobiliare) Viale della Vittoria 13 - Ancona TUTOR: Paola Camilla Proietti	Leonardo Mostarda
6	Studio della architettura di una piattaforma SW flessibile, modulabile, collaborativa ed interoperabile che verrà utilizzata per la realizzazione di vari sistemi di controllo e misura per applicazione industriali - Study of the architecture of a flexible, adaptable, collaborative and interoperable SW platform, to be used for the realization of various control systems and industrial applications	Science and Technology	Computer science	AEA srl Gruppo Loccioni Via Fiume 16 - Angeli di Rosora (AN) TUTOR: Gianluca Di Fulvio	Andrea Polini

7	Ricerca, progettazione, prototipazione e sperimentazione di modelli innovativi per lôerogazione di servizi di supporto, assistenza, monitoraggio basati su tecnologie domotiche e cloud based, rivolte a target di anziani, bambini, categorie fragili o a rischio - Research, design, prototyping and testing of innovative models for the provision of support services, assistance, monitoring -based automation technologies and cloud based, addressed to elderly people, children, frail or at risk categories	Science and Technology	Computer science	NET 4 PARTNERS srl Via Marconi 102 - Falconara Marittima (AN) TUTOR: Sonia Massobrio	Francesco De Angelis
8	Prototipazione virtuale in realtà aumentata - Virtual prototyping in augmented reality	Science and Technology	Computer science	MADEBA-LAB srls Via I Maggio 156 - Ancona TUTOR: Luca Barbera	Leonardo Mostarda
9	Un middleware adattivo ad alta efficienza energetica per la programmazione di reti di sensori ed attuatori (WSANs) - Energy efficient adaptive middleware for sensors and actuators networks (WSANs)	Science and Technology	Computer science	WINITALIA Via Don G. Bosco 59 - Civitanova Marche (MC) TUTOR: Francesco Arruzzoli	Leonardo Mostarda
10	Efficientamento energetico integrale: audit, diagnosi e sistemi di efficienza energetica prodromici alla gestione intelligente dellôenergia negli impianti e negli edifici industriali - Energy efficiency: audits, diagnostics and energy efficiency systems for intelligent energy management in buildings and industrial plants	Science and Technology	Computer Science: Research topic on Innovative technologies, smart housing and industrial design: structural engineering and control	Consorzio Energia Piceno Corso Mazzini 151 - Ascoli Piceno TUTOR: Renzo De Santis	Giuseppe Losco

		SCHOLARSHIP FUNDED THROUGH THE PARTNERSHIP AGREEMENT BETWEEN ANTWERPEN AND CAMERINO			
1	**Multiband superfluidity and superconductivity in novel ultrathin materials**. Multicomponent superconductivity is a novel quantum phenomenon in different superconducting materials, such as multiband ones in which different gaps open in different Fermi surfaces, films engineered at the atomic scale to enter the quantum confined regime, and two-dimensional electron gases in which different carriers participate in the formation of the superconducting condensate. In these systems the increased number of degrees of freedom of the multicomponent superconducting state allows for emergent quantum effects that are unattainable in single-component superconductors	Science and Technology	Physics		Andrea Perali

SCHOLARSHIPS CO- FUNDED BY UNICAM

RESEARCH TOPICS LIST

1	**Multi-perspective Modeling and Verification for Complex Organizations.** Complex organizations nowadays operate in complex and volatile contexts asking for prompt reactions to emerging changes in order to maintain competitiveness and efficiency. To answer to such a need a lot of effort has to be devoted to the definition of languages, approaches and tools permitting to represent and reason on process perspectives of such organizations and to successfully implement supporting IT solutions. The PhD student will be mainly involved in theoretical research work focused on the study of modeling and verification approaches for business processes enabling correct integration of software components interacting according to component-based and service-oriented paradigms in particular in a multi-organizational context.	Science and Technology	Computer Science		Flavio Corradini; EU project Learn Pad
2	Characterization and modelling of geofluid reservoirs (www.rechprolect.com) . In terms of productivity and environmental sustainability, the management and optimization of the natural reservoirs of geofluids (i.e. mineral and hydrothermal waters, geothermic fluids, oil and gas) require an integrated and multidisciplinary approach, which is particularly true in fractured and faulted sedimentary rocks that are known for their heterogeneity and petrophysical complexity. This PhD project aims to explore the relationships existing between compositional, depositional, and diagenetical rock features and the physical-mechanical properties of the sedimentary rocks.	Science and Technology	Physical and Chemical Processes in Earth Systems		Emanuele Tondi; Claudio Di Celma

3	Analysis of the physical models for the soil moisture dynamics in the vadose zone. Numerical approximation schemes for the numerical solution of these models and the corresponding computer implementation. Analysis of the mathematical methods for the adaptation of these models to a prescribed watershed and development of computer packages for model adaptation. Analysis of the mathematical methods for the evaluation of slope stability, numerical approximation of these methods and the corresponding computer implementation	Science and Technology	Physical and Chemical Processes in Earth Systems		Nadaniela Egidi; Co-funded with the Project LANDSLIDE: Project Manager: Pierluigi Maponi