Politecnico di Milano

PhD in
BIOENGINEERING

Research Title: "Improving cardiovascular chronic patients' management through advanced data processing"

Scholarships and Financial support	
Monthly net income of PhD scholarship (max 36 months)	€. *1200.00/each* (In case of a change of the welfare rates during the three-year period, the amount could be slightly modified)
Number of scholarships	2
Beginning of PhD	01/02/2017
Deadline for application	*05/12/2016*
Context of the research activity	
Motivations and objectives of the research in this field	Cardiovascular diseases (CVD) are the deadliest among chronic diseases, and with more people surviving their first cardiac event, CVD is becoming a chronic disease. It is estimated that they are responsible for 12 million disability adjusted life years lost annually and that nearly half of all deaths in Europe (48%) and in the EU (42%) are due to CVD. It is the main cause of the disease burden (illness and death) in Europe (23%). CVD has a major impact on health expenditure. Overall CVD is estimated to cost the EU27 €192 billion. In order to handle the challenges induced by the chronic disease burden the EU health systems are undergoing a paradigm shift from, reactive care to preventive care and from in-hospital to home care. Prevention systems support and motivate users in adopting healthy lifestyles (e.g., physical activity, nutrition, stress management) in order to prevent or

	delay manifestations of disabling chronic diseases. Disease management systems handle the care of patients with chronic disease, combining expertise from different areas, and integrating new technologies to offer the patient better and more cost effective care. The present project aims at the development of signal processing methodologies for the improvement of the chronic patient's management through proper definition of the risk assessment and the personalization of the therapy.
Methods and techniques that will be developed and used to carry out the research	Different data bases related to cardiac patients will be provided to the candidate. Advanced processing procedures and data mining techniques will be used for improving their information content and will allow a better definitions and the formulation of interpretative models of the pathology. Applications will be in the better management of the chronic patients.
Educational objectives	The candidate will be part of an international project funded by the EU inside the Horizon2020 program. The research will be carried out by an International team with exchange periods between partners. The candidate will take part to the research meetings and to the different phases of the project, working in a EU context. Besides acquiring specific expertise on the used methodologies, and publishing the obtained results, the candidate will improve on team collaboration, deadline compliance, research reporting.
Job opportunities	The acquired expertise will open different job opportunities as researcher and/or research manager in research public institutions, and in pharmaceutical, instrumentation or service companies. Other potions are related to management in public health institutions. Also companies and institutions interested in telemedicine, data management, statistics applications will take advantage from the collaborations with a PhD with this kind of experience
Composition of the research group	Prof. Riccardo Barbieri Prof. Enrico Caiani
Names of the research directors	*Anna Maria Bianchi*
E-mail address, phone number and web-page	*Annamaria.bianchi@polimi.it, +39 02 2399 3342*
List of Universities, Companies, Agencies and/or National or International Institutions that are cooperating in the research	Department of Informatics Engineering, FCTUC, University of Coimbra, Portugal. ITACA, Universitat Politecnica de Valencia, Valencia, Spain.
Additional support	
Housing:	*Foreign students* inserire solo se rilevante*

financial aid per PhD student per year (gross amount)	1st year 1500euros per student 2nd year 1000euros per student 3rd year 1000euros per student
Funding for educational activities (purchase of study books and material, funding for participation in courses, summer schools, workshops and conferences): funding per PhD student per year	*2nd year: 1370 euros per student* *3rd year:1370 euros per student*
Teaching assistantship: availability of funding in recognition of support to teaching activities by the PhD student	There are various forms of financial aid for activities of support to the teaching practice. The PhD student is encouraged to take part in these activities, within the limits allowed by the regulations.
Computer availability:	1st year: indicate *individual use or shared use* 2nd year: indicate *individual use or shared use* 3rd year: indicate *individual use or shared use*
Desk availability:	1st year: indicate *individual use or shared use* 2nd year: indicate *individual use or shared use* 3rd year: indicate *individual use or shared use*