



PhD in BIOINGEGNERIA / BIOENGINEERING - 38th cycle

PNRR_351_PUBBL_AMMIN Research Field: PUBLIC SECTOR INNOVATION IN A DATA-DRIVEN SOCIETY: THE ROLE OF EMERGING DIGITAL TECHNOLOGIES AND DIGITAL TRANSFORMATION IN HEALTHCARE INDUSTRY. INNOVATIVE TOOLS, MULTIDISCIPLINARITY AND SYNERGIES

Monthly net income of PhDscholarship (max 36 months)
€ 1250.0
In case of a change of the welfare rates during the three-year period, the amount could be modified.

Context of the research activity	
Motivation and objectives of the research in this field	<p>The recent proliferation and application of digital technologies in every sector has spurred interest also in public health service. Digital transformation in the form of substantially new organizational practices, capabilities and models has become the key theme in contemporary public administration and management debates, also in the healthcare industry. Its goal is an effective way to improve the quality of treatment and patient care. The main objects of the research activity will be in the context of clinical engineering and information and communication technology (ICT) and in particular in the adoption of new digital technologies in the public service. The attention will be focused on the analysis of actual digital governance models and how to implement them, organizational transformation of the current logistics and the integration of new digital technologies for service innovation. In reference to these aspects, particular attention will be carried out to data management, GDPR and IT security and the development of a centralized database system for storage and analysis of interconnected data with the final aim of structuring and simplifying the interface between medical devices of the hospital and ICT services. Also, the possibility of integration with other innovative technologies (Artificial Intelligence, Internet Of Things, Robotics and Automation) will be evaluated.</p>



<p>Methods and techniques that will be developed and used to carry out the research</p>	<p>The project will be developed mainly in collaboration with A.S.S.T. degli Spedali Civili di Brescia, the largest hospital in Lombardy and one of the largest in Italy. The PhD student will work in a multidisciplinary field based on the cooperation of Clinical Engineering department and Information and Communication Technology department of the hospital, developing in particular new solutions in the field of digitalization of service. A preliminary phase focused on the analysis of the current logistic and organization will be carried out with the office departments in the first period, after which specific models will be developed to address all aspects, from a technological, environmental and energy point of view.</p>
<p>Educational objectives</p>	<p>The PhD student will have the possibility to learn processes and working methods of the hospital technical sectors, in particular of Clinical Engineering and Information and Communication Technology, in order to implement new digital tools to apply for departments and medical devices of the hospital. The objective of the programme is to train a professional figure able to successfully integrate into both national and international, public and private research facilities and in companies manufacturing products or service providers, operating in the field of communication, information and perception technologies. Also, the participation in training events organized for Clinical Engineering and Information and Communication Technology staffs and the active involvement in national and international conferences and congresses will be planned.</p>
<p>Job opportunities</p>	<p>The PhD student will have the opportunity to learn processes and make experience in the field of Clinical Engineering and Information and Communication Technology. So, there is the possibility to create a background related to these areas and specifically to the development of skills related to the buildout of tools associated with digital services and innovation in the hospitals of the Italian regional health systems. The acquired skills will be useful not only in the public sector but also in an industrial context.</p>



Composition of the research group	0 Full Professors 1 Associated Professors 0 Assistant Professors 1 PhD Students
Name of the research directors	Prof. Veronica Cimolin

Contacts	
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Additional support - Financial aid per PhD student per year (gross amount)	
Housing - Foreign Students	--
Housing - Out-of-town residents (more than 80Km out of Milano)	--

Scholarship Increase for a period abroad	
Amount monthly	625.0 €
By number of months	6

National Operational Program for Research and Innovation	
Company where the candidate will attend the stage (name and brief description)	A.S.S.T. degli Spedali Civili di Brescia; www.asst-spedalivicivili.it
By number of months at the company	6
Institution or company where the candidate will spend the period abroad (name and brief description)	PHILIPS Healthcare; www.philips.it/healthcare
By number of months abroad	6

Additional information: educational activity, teaching assistantship, computer availability, desk availability, any other information
<p>Attinenza alla tematica prescelta del bando ex D.M. 351, artt.6-9, comma 1</p> <p>La presente attività si colloca nell'ambito della ricerca applicata nelle pubbliche amministrazioni e finalizzata a favorire la transizione digitale, contribuendo alla riprogettazione e implementazione di modelli di governance digitale e integrazione di nuove tecnologie digitali per l'innovazione dei servizi, al fine di garantire una maggiore efficacia, efficienza ed economicità dell'azione pubblica. L'obiettivo finale sarà quello di strutturare e semplificare l'interfaccia tra i dispositivi medici e i servizi ICT.</p>



Impresa, centro di ricerca, pubblica amministrazione presso cui si svolgerà l'attività esterna

A.S.S.T. degli Spedali Civili di Brescia

settore attività: Sanità pubblica

lwww.asst-spedalicivili.it

numero di mesi previsti: 20

Descrizione sintetica attività:

attività di ricerca svolta nell'azienda ospedaliera grazie alla collaborazione sinergica fra le unità operative complesse Ingegneria Clinica e Information and Communication Technology (ICT). Ad un periodo iniziale di affiancamento alle attività dei due dipartimenti con il fine della comprensione dei processi svolti, seguirà lo svolgimento autonomo ma coordinato e supervisionato del progetto di ricerca in concerto con le attività di entrambi gli uffici ed in sinergia con gli interessi multidisciplinari della realtà ospedaliera.

Ente, università, azienda, centro di ricerca presso cui si svolgerà il periodo di studio e ricerca all'estero

PHILIPS Healthcare

settore attività: Healthcare

www.philips.it/healthcare

numero di mesi previsti: 6

Descrizione sintetica attività:

proseguo dell'attività di ricerca presso una sede estera dell'azienda. In particolare, verrà garantito il proseguimento del periodo di formazione grazie all'interfacciamento ed alla partecipazione diretta con un ruolo attivo ai programmi operativi che il produttore ha avviato nel contesto dei progetti in corso di svolgimento. Quest'ultimo verterà sulla digitalizzazione dei sistemi con particolare approfondimento nel contesto delle applicazioni medico-sanitarie in linea con quanto analizzato presso l'A.S.S.T. degli Spedali Civili di Brescia.

A shared desk and a PC will be given to the student for the time needed to carry out research. A limited budget will be available for travelling and purchases, too.