



Al Magnifico Rettore  
All'Ufficio Dottorato di Ricerca  
e Post Laurea  
Università Politecnica delle Marche

**Oggetto: richiesta periodo di soggiorno all'estero**

Il sottoscritto Prof. Virgilio Paolo Carnielli, in qualità di docente tutor nel programma di ricerca del Corso di dottorato di ricerca in Biomedical Sciences – XXXVII° ciclo, chiedo l'autorizzazione a che il Dott. **Giulio Perrotta** possa trascorrere un periodo di nove (9) mesi, a decorrere dal 01/01/2024 al 30/09/2024, presso la Sleep Medicine (Unit Neurocenter of Southern Switzerland Regional Hospital of Lugano), diretto dal Prof. Mauro Manconi - University of Bern (Dpt of Neurology), per scopi inerenti la sua attività di dottorando.

Il Dott. Giulio Perrotta è iscritto regolarmente al secondo anno del corso di dottorato in Biomedical Sciences – XXXVII° ciclo e sotto la mia supervisione, sta affrontando tematiche riguardanti la Telemedicina in Pediatria-Neonatologia.

L'attività per la quale si chiede la mobilità rientra nell'ambito dell'attuazione del programma di studi e di ricerca.

Si chiede pertanto l'incremento dell'importo della borsa di studio così come previsto all'art. 11 commi 5 e 6 del Regolamento Dottorato di Ricerca.

(Dott. Giulio Perrotta, Dottorando)

(Prof. Virgilio Paolo Carnielli, Docente Tutor)

*Prof. Virgilio Carnielli*  
Università Politecnica delle Marche

VISTO SI AUTORIZZA  
IL COORDINATORE  
Prof. Carlo Catassi

*Carlo Catassi*





## PROPOSAL FOR COLLABORATION FOR RESEARCH ACTIVITIES ABROAD

Doctoral Cycle/Period: Ciclo XXXVII (2022/2024)

Reference year: 3° anno (2024)

Type of Ph.: Ph.D. in "Biomedical Sciences" (PON, Green)

Name of doctoral student: **Giulio Perrotta**

Faculty/Area: Faculty of Medicine (Neonatology/Pediatrics)

Project title: Activation of an advanced and interactive telemedicine service in the birth points and pediatrics-neonatology wards of the Marche Region: validation of the service's efficiency on health and environmental impact reduction

Study design: The three-year research project involves the activation and validation of a telemedicine system consisting of an online platform and the necessary instrumentation for the acquisition of audio, images and parameters (webcams, microphones, 5G connectivity and transport support), as well as the implementation of data already held by pediatrics and neonatology departments in the Marche region. Specifically, the telemedicine system will be made accessible to healthcare professionals in the Obstetrics, Neonatology and Pediatrics birth points and wards, and the doctoral student will have to evaluate the goodness of fit of the data acquired from the centers participating in the experimentation and the results of the questionnaires administered to medical staff at the end of the use of the service, with the aim of noting the improvements made; the questionnaire will be constructed in such a way as to quantify the benefit brought by the service both in terms of health gain for the patient and environmental impact (e.g., the reduction in CO2 emissions associated with the patient no longer needing to be transferred after using the telemedicine service will be estimated). The same will be done in case of online training and refresher courses. In addition, the attempt to develop clinical-organizational algorithms (based on the collection of biological samples) and the assessment of the environmental impact of the telemedicine service (based on the main benefits, such as the reduction of patient travel between health care facilities, the reduction of pollution in terms of CO2 emissions and environmental impact, the improvements in the care provided to patients, and the reduction of costs for both patients and the organization.

In line with the submitted research project, I, Giulio Perrotta, Ph.D. student, currently engaged in the fulfillment of the second academic year, request my faculty to consider the following "proposal for collaboration in carrying out research activity abroad":

Reference period: 1/1/2024 – 30/09/2024

Headquarters: University of Switzerland (USLCH) / University of Bern (UNIBE.CH) / Ospedale Regionale Civico di Lugano

Tutor: Prof. Mauro Manconi

E-mail: [mauro.manconi@eoc.ch](mailto:mauro.manconi@eoc.ch)







Research activities that the doctoral student will carry out:

- a) Analysis of the state of the art of telemedicine in pediatrics and neonatology. Using various databases such as Google Scholar, IEEE Xplore, Web of Science, Pubmed, the student will analyze the solutions, and in particular, for the field of NIRS, electroencephalogram and MRI, evaluate the predictive value of brain injury events, such as ventricular and cerebellar hemorrhages and leukomalacia.
- b) Development of predictive models and data analysis, capable of in-depth investigation of the advantages and disadvantages in the use of this technology.
- c) Participation in the Telemedicine Project for Pediatric and Developmental Sleep Disorders, in collaboration with Dr. Altrudo, for the purpose of creating a self-administered questionnaire in telematic mode.
- d) Realization of study materials for publication of one or more manuscripts in reviewed journals.

The Foreign Tutor makes himself available for direct contact with the university administrative authority in order to formalize the collaboration proposal, in the manner provided by national regulations.

Lugano, 15/05/2023

Prof. Mauro Manconi  
Prof. Dr. med. Mauro Manconi  
Vice-Primario  
Responsabile Servizio Medicina del Sonno

Giulio Perrotta



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**Oggetto: Richiesta proroga periodo di soggiorno all'estero**

Il sottoscritto Prof. Virgilio Carnielli, in qualità di docente tutor nel programma di ricerca del Corso di dottorato di ricerca in Biomedical Sciences – XXXVII° ciclo, chiedo l'autorizzazione a che il Dott. Giulio Perrotta possa prorogare il periodo di permanenza all'estero fino al 31 Dicembre 2024 presso la Sleep Medicine (Unit Neurocenter of Southern Switzerland Regional Hospital of Lugano), diretto dal Prof. Mauro Manconi - University of Bern (Dpt of Neurology) per portare a termine le attività connesse al suo Progetto di Dottorato.

Cordialità

Ancona, 15/07/2024

Il Tutor  
Prof. Virgilio Carnielli  
**Prof. Virgilio Carnielli**  
Università Politecnica delle Marche