

## AD HOC TEACHING MODULE Announcement

UNIVERSITÀ DEGLI STUDI DI NAPOLI FEDERICO II

**PHD IN INFORMATION AND COMMUNICATION TECHNOLOGY FOR HEALTH**

**PHD IN INFORMATION TECHNOLOGY AND ELECTRICAL ENGINEERING**

**Title:** From virtual histology to neural science: new directions for biomedical engineering and digital health

**Lecturer:** Prof. Dr. Paolo Gargiulo

Full professor with Reykjavík University, Iceland

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**Website:** <https://en.ru.is/bne>

**ECTS Credits: 3**

### Short bio:

Prof. Paolo Gargiulo studied at TU Wien and was awarded with his PhD in 2009. He developed at Landspítali (Iceland) a [3D-Printing service to support surgical planning with over 200 operation planned with a significant impact on the Icelandic health care system](#) and he currently cooperates with institutions in Italy and UK to establish similar infrastructures.

Paolo Gargiulo is the director of the [Institute of Biomedical and Neural Engineering and medical technology center](#) at the University Hospital Landspítali/ Reykjavik University.

He has published over [100 papers](#) in peer reviewed international journals, several chapters in academic books and presented his works in many international conferences and workshops.

Thanks to an EU grant entitled RESTORE received in 2019, Paolo Gargiulo's team developed the [1<sup>st</sup>European Database](#) of patient-specific anatomical models for condyle lesions. In 2022, he received another EU grant with a project called [SINPAIN](#) aiming to Develop the Next-Generation Advanced Therapy for Knee Osteoarthritis. In 2023, he received the award as best scientist of the year at Reykjavik University and the grant of excellence from the Icelandic center of research RANNIS to study postural control response as signature of neurodegenerative conditions.

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**Schedule (rooms will be communicated at a later time, lectures will be held at via Claudio 21, Napoli)**

Date (time)	Hours	Room	Lecturer
19/03/2024 (10:00 am - 1:00 pm)	3	TBD	Paolo Gargiulo
26/03/2024 (10:00 am - 1:00 pm)	3	TBD	Paolo Gargiulo
28/03/2024 (10:00 am - 1:00 pm)	3	TBD	Paolo Gargiulo
09/04/2024 (10:00 am - 1:00 pm)	3	TBD	Paolo Gargiulo
10/04/2024 (10:00 am - 1:00 pm)	3	TBD	Paolo Gargiulo

### Content

**I Lesson - Introduction:** Course introduction; engineering medical imaging to improve healthcare, definition of virtual histology (part 1)

**II Lesson - engineering medical imaging to improve healthcare (part 2):** this lecture will give an insight on the different pipelines employed to implement virtual histology technologies in research and clinical applications. In addition, the new directions of 3d model in healthcare education will be discussed (an opportunity for ICT engineers).

**III lesson - digital health:** this lecture will explore the different directions of the digital health revolution and the opportunities for ICT engineers. There will be also a hands-on session on medical data digitalisation.

**IV Lesson -supporting clinical evaluation with numbers:** in this lecture will be shown the work done in Iceland to establish the 1<sup>st</sup> multi-parameters measurement for postural control response. Particular attention to the potential value of the neuropsychological response and brain connectivity to quantify physiology.

**V Lesson - writing grants and open discussion:** in this last lecture will be discussing the various steps to form and write research hypothesis, create a multidisciplinary research group and apply for grants. Finally, an open discussion on the work done during the teaching module.

### Notes

Participants are requested to send an e-mail to prof. Alfonso Maria Ponsiglione ([alfonsomaria.ponsiglione@unina.it](mailto:alfonsomaria.ponsiglione@unina.it)) and prof. Carlo Ricciardi ([carlo.ricciardi@unina.it](mailto:carlo.ricciardi@unina.it)) with the following information: **Student name, name of the PhD course and cycle, by 15 March, 2024.**

There will be a final assessment based on a questionnaire on the topics covered across the Module.