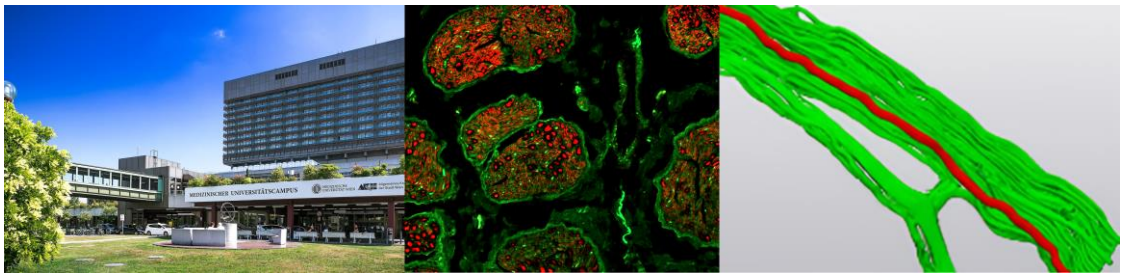
CENTER FOR MEDICAL PHYSICS
AND BIOMEDICAL ENGINEERING
MEDICAL UNIVERSITY OF VIENNA

TU WIEN BME INSTITUT FÜR BIOMEDIZINISCHE ELEKTRONIK
INSTITUTE OF BIOMEDICAL ELECTRONICS

Master thesis
Image-based modelling of vagus nerve stimulation for cardiac applications



About the Project:
The Cardiovascular Dynamics and Artificial Organs research group at the Center for Medical Physics and Biomedical Engineering, Medical University of Vienna, in collaboration with the Institute of Biomedical Electronics at TU Wien, invites applications for a Master thesis within project PREVENT. This innovative project seeks to revolutionize heart failure treatment by developing accurate functionalized models of the human vagus nerve using advanced immunohistochemistry and micro-computed tomography imaging techniques.

Position Overview:
The successful candidate will be instrumental in developing computational models for vagus nerve stimulation, employing micro-CT and immunohistochemistry images through 1D and finite element modeling. This thesis will contribute significantly to our understanding of VNS mechanisms, with direct implications for cardiac therapy.

Required Skills:
- Basic understanding of neurostimulation principles.
- Initial experience with computational modeling (via coursework, seminars, etc.).
- Background in computational science, biomedical engineering, electrical engineering, or related fields.
- Proficiency in Python and/or MATLAB programming.

Desirable Skills:
- Experience with NEURON and finite element simulation software (e.g. COMSOL or Ansys).
- Familiarity with image-based modelling.

Duration: 6-9 months

Deadline for Applications: April 15, 2024

How to Apply:
Interested candidates are encouraged to apply by sending a CV and motivation letter to Dipl.-Ing. Dr. Max Haberbusch at max.haberbusch@meduniwien.ac.at, Assoc. Prof. Dipl.-Ing. Dr. Francesco Moscato at francesco.moscato@meduniwien.ac.at, and Dr. Paul Werginz at paul.werginz@tuwien.ac.at. Please specify "Master Thesis Position - PREVENT Project" in your subject line.

Seize this unique opportunity to impact the future of heart failure treatment, enhance your expertise in biomedical engineering, and advance your career through collaborative research. We welcome applicants from diverse backgrounds to join our team in this pioneering endeavor.