UNIVERSITY OF GENOA
DEPARTMENT OF INFORMATICS, BIOENGINEERING, ROBOTICS AND SYSTEMS ENGINEERING
MASTER'S PROGRAM IN BIOENGINEERING

# Thesis Project Form

**Title (tentative):** A Spiking Neural Network (SNN) to predict epileptic seizures

**Thesis advisor(s):** Chiappalone Michela, Farshad Moradi (Aarhus University, Denmark)

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## Description

**Motivation and application domain**

The main goal of the thesis work consists of design, build and optimize a Spiking Neural Network (SNN) to predict epileptic seizures.

**General objectives and main activities**

The student will learn to design and optimize a bioelectrical therapeutic solution for health care, which more specifically consists of a real-time interface between a computational device and a biological system. The student will be involved in scientific and technical activities aimed at building and characterizing a hardware solution based on a Spiking Neural Network (SNN) to be later tested in vitro and/or in vivo and will serve to detect pathological patterns of activity related to epileptic seizures.

**Training Objectives (technical/analytical tools, experimental methodologies)**

The student will gain skills in designing, building and characterizing a hardware-based device able to read and process in real time the incoming data. Moreover, the student will be trained to process and interpret neuronal data with appropriate tools.

**Place(s) where the thesis work will be carried out:** Aarhus University, Aarhus, Denmark

## Additional information

**Pre-requisite abilities/skills:** MATLAB programming skills, signal processing, statistics, attitude to computational and technical work

**Maximum number of students:** 1

**Financial support/scholarship:** Erasmus grant