



Thesis Project Form

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

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

E-mail: michela.chiappalone@unige.it

Address: Via Opera Pia 13, 16145 Genova

Phone:

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