

## **Report on IEEE CSS Outreach meeting on Control Challenges in Disease**

The meeting was held on the 26th of June in room 6425 of the Andre-Aisenstadt Building of the Montreal University campus. The complete program is attached with this report.

The event was a success, with about 25 attendees (plus the speakers). The complete list of attendees is provided below.

### **Costs:**

Catering was covered by our research group, so we only need to cover the travel and accommodation for three of our speakers: Peter Wellstead (England), Miriam Garcia (Ireland) and Andres Kriete (US). The total amount requested is thus US 5331.43.

## **Program**

### **Description**

This one-day workshop will serve the purpose of encouraging researchers from the control engineering community to reach out into new areas of control systems studies in disease research. In particular, the meeting will be targeted at young and established researchers who are looking for important challenges in life sciences, and give them a 'getting-started' in possible applications of mathematical modelling, optimization and control theory in biomedicine. We will use existing work on systems approaches to age-related neurodegenerative disease as a motivation and a 'worked example', but other diseases, such as cancer, will also be discussed.

### **Date and Location**

June 26<sup>th</sup> in the Aisenstadt Building (#20 on the map next page.) of the Montreal University Campus. Room 6225 (6th floor).

### **List of speakers**

Peter Wellstead (Honorary Professor, Science Foundation of Ireland)

Rick Middleton (University of Newcastle, Australie)

Andres Kriete (Drexel University, USA)

Miriam Garcia (National University of Ireland Maynooth, Ireland)

Mathieu Cloutier (GERAD - Ecole Polytechnique de Montréal, Canada)

### **Schedule**

8h30-9h	Registration and coffee
9h-9h15	Opening address (Mathieu Cloutier)
9h15-10h	A Systems Approach to Parkinson's Disease (Peter Wellstead)
10h-10h45	Calcium Homeostasis and Implications in Neurodegenerative Diseases (Rick Middleton)

10h45-11h15	Coffee break
11h15-12h	The Role of Aging and Loss of Robustness in PD - a Systems Biology Approach (Andres Kriete)
12h-14h	Lunch (included with registration)
14h - 14h45	Modelling and Control of Motor Signalling Loops (Miriam Garcia)
14h45 - 15h30	Modelling and Control in Medical Research: Challenges and Opportunities (Mathieu Cloutier)
15h30 - 16h15	Concluding remarks - Open discussion

### List of attendees

<b>SURNAME</b>	<b>NAME</b>	<b>AFFILIATION</b>
Cassani	Raymundo	Hôpital du Sacré-Coeur
Chinta	Lak	Centre for Addiction and Mental Health
Cloutier	Mathieu	GERAD
Dorn	Jonas	Université de Montréal
Famildardashti	Vahid	
Gatto	Paloma	École Polytechnique de Montréal
Ghodratnama	Mohammad	École Polytechnique de Montréal
Goffaux	Guillaume	École Polytechnique de Montréal
Hammami	Ines	École Polytechnique de Montréal
Jacquemet	Vincent	Hôpital du Sacré-Coeur
Khadra	Anmar	McGill University
Kriete	Andres	Drexel University
Lacroix	Benjamin	IRIC
Malhamé	Roland	École Polytechnique de Montréal
Matene	Elhacene	Université de Montréal
Meskin	Nader	Qatar University
Middleton	Rick	University of Newcastle
Montecinos	Julio	École Polytechnique de Montréal
Perrier	Michel	École Polytechnique de Montréal
R. García	Míriam	Hamilton Institute
Readman	Mark	University of Manchester
Recio Garrido	Dídac	École Polytechnique de Montréal
Reddy	Puduru Viswanadha	GERAD
Robitaille	Julien	École Polytechnique de Montréal

Sheikholeslami	Zahra	École Polytechnique de Montréal
Sugarman	Jordan	McGill University
Vinet	Alain	Université de Montréal
Wellstead	Peter	Hamilton Institute