<div align="center">
Minutes of
IEEE CSS TC-SIAC meeting
CDC 2017, Melbourne, Australia
Melbourne Convention Center
Wednesday, December 13th, 2017
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Number of attendees: 17
Meeting duration: 1h30
The slides used for this meeting are available on the TC web-page http://system-identification.ieeecss.org/tc-system-identification/documents

Summary of the main ideas discussed during the meeting

In addition to a description of the main recently completed/on-going activities of the TC (see slides for more details), the main part of this meeting has been dedicated to discussions concerning the TC SIAC website, the Wikipedia project, a project suggested by José Ramos and entitled "Using System Identification and Machine Learning in Machine Olfaction Applications" as well as the not so new idea of having a special issue in an IEEE journal dedicated to success stories in system identification and adaptive control.

Wikipedia project

For several years now, many efforts have been made by the Control System Society to improve the Wikipedia pages dedicated to control science and technology. The task of taking care/improving the Wikipedia pages has been more specifically assigned to the TCs. Our TC was thus invited to take care of the most important pages related to system identification and adaptive control. Girish Chowdhary and Tansel Yucelen are the leaders of the TC-SIAC working group dedicated to this Wikipedia project. Notice also that this project is conducted in collaboration with the IFAC cluster CC1 Signals and Systems (chaired by Håkan Hjalmersson, TC-SIAC member), and more specifically with the TC on Modelling, Identification and Signal Processing (chaired by Marco Campi).

For more than 2 years, several members expressed their wish to start writing the pages dedicated to these specific SIAC topics. It is unanimously clear that having up-to-date pages in Wikipedia promoting our results is very important because of the Wikipedia impact on a large audience. Unfortunately, it seems that it is complicated for most of the TC members to find time to create Wikipedia pages whatever the size of the document. Despite the availability of tutorials (see https://en.wikipedia.org/wiki/Help:Editing for details), a good Wikipedia wizard https://en.wikipedia.org/wiki/Wikipedia:Article_wizard), the availability of an IEEE member to implement the Wikipedia pages for us (as soon as the text and equations are provided) as well as many efforts made by the TC members, we must draw the conclusion that, unless major changes in the next months, the Wikipedia project is put on hold for a while.

TC SIAC website

In order to increase the impact of our community via the TC SIAC website, it was decided during the last TC SIAC meeting in Seattle (ACC 2017) to create new pages dedicated respectively to
- "recommended books and new papers" where TC members can promote
  - important books or overview papers recommended to understand the basic ideas of system identification and adaptive control,
  - their own recent contributions thanks to links to available new journal papers,
- "job opportunities" in order to promote future PhD, Post doc or tenured positions in the groups or universities represented in the TC.

These pages are now available on the TC SIAC website. I am now waiting for TC members contributions to update these important pages in real time. I will also help update the web-page dedicated to job opportunities by collecting the job opportunities published on the IEEE e-letter website.

Using system identification and machine learning in machine olfaction applications

An electronic nose (e-nose) system is a device which mimics the sense of smell. Such a system can be used for the detection of various types of cancers through breathe analysis, detection of counterfeit malaria pills, quality inspection for coffee, olive oil, tomatoes, wine, and perfumes, water quality inspection, environmental monitoring, i.e., gas emissions, carbon monoxide, etc.
José Ramos is looking for TC members in order to form groups preferably at institutions known for doing work in system identification and/or machine learning to work on any of the above-mentioned applications. He is ready to provide a full 8-sensor e-nose system, a breakout board interface, and a working code, along with technical support and guidance for members interested in working with him on this project. The idea is to form a network of researchers with a common theme – the use of system identification and machine learning for odor detection and classification. More specifically,

- José is looking for people interested in experimenting with an electronic nose system to collect and analyze data with specific interests in classifying and/or detecting odors.
- The type of data analysis involves system identification, *i.e.*, ARMA, subspace, LPV, etc., and to use the model parameters as features, then feed them into a machine learning algorithm (*i.e.*, support vector machine classifier), to classify odors.
- Other exercises will involve calibration of the instrument to determine gas concentrations in lieu of more expensive procedures such as gas chromatography/mass spectroscopy. Once calibrated the instrument can be used for detecting the concentration of a gas or a particle.
- Another recent trend in e-nose technology is to modulate the temperature and humidity, which are critical variables that can throw off the calibration, in order to improve the results.
- E-noses are currently being used to detect certain types of cancers and diseases through breathe analysis, *i.e.*, lung and vaginal cancers, diabetes (*i.e.*, acetone odor), and many others. They are also used in detecting counterfeit products such as wines, perfumes, olive oils, coffees, as well as counterfeit malaria pills (a recent IEEE spectrum article talks about this).
- He would like to coordinate efforts leading towards a symposium at Nova Southeastern University, in Florida, and to publish the findings in a journal (*i.e.*, IEEE CST). Cross collaboration will be encouraged.
- He would like to gather data that can serve as a benchmark for electronic nose systems.
- As part of outreach, we have a series of 1-sensor e-nose system that can be used to teach K-12 students what an e-nose can do.

Please contact José Ramos for more details (jr1284@nova.edu).

Success stories in system identification and adaptive control

We are all convinced that it is essential to highlight our success stories when system identification and adaptive control come into play. In order to make this emphasis real, a strong and open discussion has been ignited during the TC SIAC meeting. The idea of organizing a workshop or tutorial lecture during CDC 2018 or ACC 2019 has been suggested as a starting point with the underlying idea that such a session should lead to papers in journals like IEEE CSM or IEEE Spectrum because of their large audience and a good match between this specific topic (success stories) and the scopes of these magazines. During this discussion, it has been suggested creating a group of 2 to 4 TC members to lead this project. I am now waiting for volunteers to start the next step of the procedure.