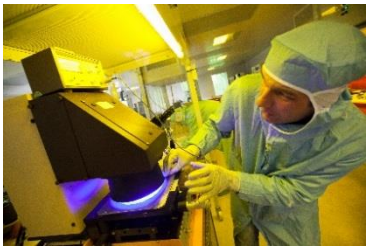
CENTRE DE LINGUISTIQUE APPLIQUÉE
UNIVERSITÉ DE FRANCHE-COMTÉ

Presenting Research Papers in English at a Colloquium

A Simulation at the CLA (Centre for Applied Linguistics) Université de Franche-Comté / COMUE UBFC




Online on Zoom

Monday 22nd of March and Monday 29th of March 2021

UBFC
UNIVERSITÉ BOURGOGNE FRANCHE-COMTÉ

Monday March 22nd – **Programme**

Each presentation will be followed by questions from the audience.

8:50 am - Doors open
9:05 am - Welcome and Introduction

9:10-9:35 am - Mehdi Dagdoug
PhD student in Mathematics, Maths laboratory, UBFC
Model-assisted estimation through random forests in finite population sampling
In this talk, we will look at some fundamental notions of statistics. To accompany us through it, definitions and concepts will be illustrated by the following concrete problem : estimating the average income of French citizens. The methodology that will be used to solve this problem will be that of survey sampling. Step by step, we will define concepts such as populations, samples, sampling designs and estimators, among others, and illustrate them with concrete examples. We will give a closer look on statistical estimators and explain the meaning of some of their properties (bias, variance, consistency, asymptotic distribution…). With this background in mind, we will have a better understanding of the mechanisms hidden behind a poll and learn how to adopt a critical look regarding the statistics that we hear of in our everyday life.

9:35-10 am - Francesco D'ALESSANDRO, PhD student in Femto-ST, department of applied mechanics ; working with CENAERO and SAFRAN aircraft engines
Multi-fidelity surrogate models for the simulation and calibration of global aero-engine dynamics
An aircraft engine is a turbo-machine composed of a compressor, a combustion chamber and a turbine. The compressor takes a fresh air volume from the external environment increasing its pressure and temperature. The hot air-flux is then mixed with a low density fuel in the combustion chamber and burned. The hot gases are partially expanded in a turbine, which supplies the compressor with the necessary mechanical energy. The hot gasses are then expelled through a nozzle generating the thrust. My work involves using AI and simulations to examine the different types of behaviour and reactions of an aircraft engine.

10 am: Break

10:15-10:40 am - Siham Mouhtadi, PhD Student at the UFBC working with the MSF team at UTINAM
The use of Nickel oxide films as supercapacitor électrodes
Nickel oxide is used as an electrode of alkaline rechargeable batteries due to its high theoretical specific capacitance. My PhD project deals with advanced materials and aims to control colloidal particle assemblies for the formation of controlled porosity films for applications in the field of energy, especially for new generations of batteries. A fundamental issue is to correlate the physico-chemical properties of the colloidal dispersion with the final properties of the coatings.

10:40-11:05 am - Marc Prudhomme, PhD student, FEMTO-ST
Acousto-fluidic in water emulsion and foam for detection of bio-analytes
A biosensor is a device that aims at capturing small biological elements, called analytes, in a liquid media. It is generally composed of a flat surface covered with bioreceptors. Near this biointerface, a transductor is used to deliver a specific signal according to the analytes captured. This system is surrounded by a fluidic structure allowing to bring the liquid sample to the capture zone, forming a microfluidic chip. In this thesis, instead of using a flat surface as a biointerface, we will use bubbles or droplets due to the numerous advantages.

Closing Remarks.

Monday March 29th – **Programme**

Each presentation will be followed by questions from the audience.

8:50 am - Doors open
9:05 am - Welcome and Introduction

9:10-9:35 am - Valentin Petit

PhD student at the Mathematics laboratory of UBFC

Nondivisible point of elliptic curves

An elliptic curve is the set of solution of an equation of type y2+a1xy+a3y=x3+a2x2+a4x+a6. One of most important properties of elliptic curves is that there is a naturel addition law on elliptic curves. We note that elliptic curves are used more and more to make cryptosystems in systems with small memory like smartcards. It became necessary to study in-depth the properties of elliptic curves. During the first year of my PhD, I will work on a two parameters family of elliptic curves.

9:35-10 am - Matyas Diezinger

PhD student at Femto-st, Besançon

3D visual tracking, pose calculation, and piloting of flexible microrobots for surgery and minimally invasive endoscopy

In the last decade, there has been a growing interest from the robotics community for flexible and continuously bendable structures, especially for medical and surgical applications. These flexible robots present several scientific challenges related to their design, their static and dynamic modeling, their stability and their control. One of the work approaches for the control of those robots is the use of visual feedback in on-board or remote configuration. This approach makes it possible to monitor and estimate the configuration of a flexible robot in real time and its control by visual feedback.
My thesis work is based on the development of 3D visual monitoring methods of flexible microrobots using one or several imagers (camera, optical coherence tomography, electron microscope) to reconstruct the global shape of a flexible microrobot and to estimate its 3D pose at any point.

10 am: Break

10:15-10:40 am - Abigail Frantz

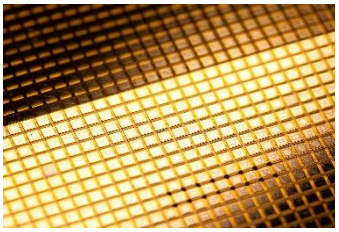
PhD student working at the School of Fine Arts in Besançon (ISBA)

Opening the matter-body. Archaeology of the representations and movements of the incision, the fold and the thread in arts. Research-creation

The article “L’entaille”, published by Georges Blin in *Poésie 45*, states that the artist can be judged according to what he cuts out or removes from the world. Is this incisive instinct or eagerness for cutting (which appears not only in creative practice, but also in scientific research methods) submitted to a curiosity toward hidden things, things that can only be revealed by the edge of the blade or a creating tool ? Or is it rather a step in the process of altering a body ?
The work will analyse the gap between the aggressive and etiological aspects both equally contained in this word of “incision”, in relation to creative approaches provided by plastic arts and practices, including my own. I will therefore work at the crossroad of practical experimentation (involving cuts, folds and threads, and interdisciplinary research involving anthropology, art history, philosophy and scientific imaging).

Closing Remarks.



For further information and the zoom code, please contact:
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