



Presenting Research Papers in English at a Colloquium

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

Lecture Hall Quemada

March 21st and April 4th 2016



March 21st • Programme

Each presentation will be followed by questions and discussion

- 5:25-5:35 pm
 - 5:40 pm
- Check in
Welcome and Opening Remarks**

- 5:45-6:15 pm **Laurent LUCIEN, PhD student in Computer Science, FEMTO-ST/DISC, UFC**
Multiagent Hybrid Architecture for Collaborative Exchanges between Communicating Vehicles in an Urban Context

Nowadays, we are surrounded more and more by powerful and intelligent communicating objects (smart phones, detectors and even cars) which are moving in increasingly interconnected environments and have abilities to communicate with each other. A collaborative approach allows these entities to exchange information and objectives and to implement rules in a structured manner in order to optimize the execution of their own mission and therefore the operation of the system in general. For the sake of agent-based modeling, we define the collaboration and list the challenges raised, like technical architecture and data organization. Then we propose a dedicated architecture for collaborative exchanges with an example based on communicating vehicles in an urban context and implemented on the GAMA multiagent platform (specialized in modeling of spatialized phenomena).

- 6:15-6:40 pm **Stéphane ALCÉNAT, PhD student in Economics, CRESE, UFC**
Genetic information and Health Insurance: A Welfare Approach

The identification through genetic testing of gene mutations which increase the susceptibility to some diseases raises several economic issues. One of the most controversial is related to the use of genetic information in health insurance markets (genetic discrimination). In response, policy decision makers have attempted to protect individuals from genetic discrimination. In order to do so, some governments have voted legislation to regulate its use and disclosure. Regulations on access and use of genetic information vary between countries, ranging from very strict regulation to absence thereof (laissez-faire). Academic studies have shown that genetic information, when it is revealed to insurers, can be welfare maximizing and allows better targeted prevention actions. In our ongoing research, first we introduce the notion of uncertainty in genetic testing to analyze its impact on social welfare and optimal prevention level. Secondly, we consider the heterogeneity of individual preferences regarding treatment in order to assess the impact of genetic information on individual choices and personalized medicine.

- 6:40-7:05 pm **Yinjuan WANG, PhD student. Engineering and Cutaneous Biology Laboratory, INSERM UMR 1098, UFC**
The Role of "X" Protein Secreted from Fibroblasts in Lentigo Pathogenesis

Dermal fibroblasts are traditionally recognized as synthesizing, remodeling and depositing collagen and extracellular matrix (ECM), helping to bring thickness and firmness to the skin. They communicate with each other and neighboring cells by secreting a large number of cytokines and growth factors, playing a crucial role in skin physiology. During epidermal melanogenesis, they participate actively in the signal cross-talk between melanocytes and keratinocytes. Many studies have investigated the regulation of skin pigmentation by focusing on the melanocytes in the epidermis that synthesize melanin, and the neighboring keratinocytes that receive and distribute it in the upper layers of the skin. Fibroblasts exhibit a great dynamic in terms of pigmentation. Experimental protein "X" is one of the proteins secreted by fibroblasts, effecting melanogenesis. Some researchers have found that the "X" gene plays a significant role in vitiligo, melanoma, and palmoplantar, but no one has reported on the role in lentigo. Therefore, I am going to study the role of this gene expression in lentigo pathogenesis.

- 7:05-7:20 pm **Break: Complimentary Refreshments**

- 7:20-7:45 pm **Théo OUVRARD, PhD student, EA4660, C3S Health - Sports Department, Sports College, UFC**
Assessing Cyclists' Physical Qualities and Mental Stimulation During Races Thanks to the "Record Power Profile" Method

Mobile devices which can directly measure power produced by cyclists pedaling on their own bikes are now becoming very affordable and popular. These new devices offer a lot of new possibilities for cyclists' training and monitoring. Pinot and Grappe (2011) recently proposed a new method based on Power Output (PO) records, "Record Power Profile" (RPP), to monitor cyclists' physical qualities and performance. This RPP is based on their maximal mean PO during efforts of variable durations (1s to 4h) at training and racing. However, this method doesn't consider cyclists' PO differences between races and training. Lots of psychological parameters (anxiety, motivation...) could influence their ability to produce high PO during a race. Thus, we propose a new method, which is based on the balance between racing and training PO, to assess cyclists' psychological ability to attain their physical potential during races.

- 7:45-8:10 pm **Damien COUVAL, PhD student, Law, LETS, UFC**
Common Share Purchase Warrant

In the ecosystem of startups, successfully convincing investors may be time consuming, complicated and expensive. Even if the survival of the company is at stake, the tools available to CEOs may appear limited and little in favor of growth and innovation. However, a solution already exists in the commercial code, known as the Common Share Purchase Warrant, and gives a technical response to the most common issues of fundraising. We propose to study each of its characteristics in terms of Business Law and compare them to the other two currently used systems: Capital Increase and Convertible Bonds.

- 8:10-8:30 pm **Closing Exchanges and Remarks**

April 4th • Programme

Each presentation will be followed by questions and discussion

- 5:25-5:35 pm **Check in**
- 5:40 pm **Welcome and Opening Remarks**

- 5:45-6:15 pm **Sophie FIORESE, PhD student, ELLIADD-DTEPS (EA 4661), UFC**
Non-Native Speakers' Gestures in L2 Conversation: A Preliminary Analysis

Co-speech gestures are considered to play an important role in the construction of meaning by speakers, underlying the multimodal aspect of human communication. Several types of gestures have been identified all related to meaning construction. Our communication addresses the issue of the gestural aspect of communication in the field of second language acquisition. For this presentation we will focus on one L2 conversation in order to give a preliminary analysis of the use of gestures by non-native speakers (NNS) of French in spontaneous interaction. We will identify which types of gestures are used by NNS when interacting with native speakers in a natural setting and see how those gestures contribute to meaning construction.

- 6:15-6:40 pm **Alessandra DEL MASTO, PhD student, Department of Applied Mechanics, FEMTO-ST Institute, UFC**
Modelling the Influence of 3D Plant Fibre Morphology on Its Tensile Behaviour

Natural fibres derived from annual plants, such as hemp, flax and alfa fibres, are attractive candidates for reinforcing organic matrices in high performance composite applications. This use requires an accurate understanding of their mechanical behaviour and the development of efficient models. Experimental observations have clearly shown that most plant fibres are characterised by an intricate structure, morphology and organisation which make their characterisation more complex than for solid circular man-made fibres. When compared to purely cylindrical geometry, it is possible that such geometric features could induce effects on the fibre mechanical behaviour including stress concentrations, fibre rotation and non-linearity on its tensile response. The randomness in plant fibre shape and the associated behaviour can also have a significant impact on the mechanical properties and behaviour of composites, and more exactly on the variability of their mechanical behaviour. In this study, a numerical analysis of the influence of the hemp fibre morphology on its tensile behaviour is proposed, in order to identify the relationship between fibre morphology and its mechanical response.

- 6:40-7:05 pm **Ahmed ABD ELMOLA, PhD student, Chrono-Environment Laboratory - UMR 6249, UFC & Geosciences Montpellier**
Characterization and Behavior of Clay Minerals in a Thrust Fault Zone (Pic de Port Vieux Thrust, Pyrenees, Spain).

Sedimentary basins are commonly affected by faults which are one of the main structures responsible for partitioning those basins and geologic reservoirs. Studying fault activation, and dating the different events contributing to them, is critically important from many points of view. Reconstruction of the sedimentary basins history is very important to oil and gas companies. The time estimations for the different movements also allow us to reconstruct the interval of seismicity, providing some important information to predict the next earthquake. Fault zones are weak ones, so studying them is essential for planning civil engineering projects and constructing underground caverns. The aim of this project is to reconstruct the pressure, temperature and time pathways of the fault rock through the study of clay minerals which are the major constituents of the faults in sedimentary environments. The studied fault is Pic-de-Port-Vieux thrust, a second-order thrust related to the major Gavarnie thrust in the Axial Zone of the Pyrenees, on the border between Spain and France.

- 7:05-7:20 pm **Break: Complimentary Refreshments**

- 7:20-7:45 pm **Gemala Hapsari, ED-SPIIM, Department of Applied Mechanics, UFC**
Characterization and Identification of Sheet Metal's Constitutive Equation by Micro Incremental Forming

Beryllium Copper is widely used in the electronics and aeronautic industries, therefore a study of its mechanical properties is required in order to improve the manufacturing processes. The purpose of this research is to study Beryllium Copper's mechanical properties to characterize its mathematical model and identify its parameters, using Micro Incremental Forming. Methods used throughout this study are experiments and FEA simulation. The mathematical model attained from this study will enable us to understand how the material responds to its designated manufacturing process.

- 7:45-8:10 pm **Franck Marques, PhD student, Department of Applied Mechanics, Team Interactions Material-Process-Structure (IMPS), FEMTO-ST, UFC & ENSMM**
Dental Prosthesis Machining: A Behavior Study

Nowadays, the dental industry tends to be increasingly automatized in its machining techniques. Indeed, computer numerical control, as opposed to classical manual manufacturing of a prosthesis, is increasingly used in this field. Moreover, everything still remains to be done because the tools needed to be used must be able to machine a very smooth appearance and a complex surface containing very small details. Thus, it seems quite obvious that this domain is worth investing in for a micro-tool manufacturer like the one we are in collaboration with. Here we will focus on tool behaviors, and more widely, on general behaviors of the sort(s) of tools used in this study – with a diameter ranging from 0.5 up to 1 mm – a function of cutting conditions and influence of environment. Our current study aims to define the context, describing the tools used to machine the chosen material and why we chose a certain type of technical ceramic (zirconia) over another. Problems confronting us include the extreme brittleness of the material, its crippling properties and other issues implied by the scale effect due to these micro-tools.

- 8:10-8:30 pm **Closing Exchanges and Remarks**

*For further information
please contact*

- **By email**

debbi.hicks@univ-fcomte.fr

sarah.bure@univ-fcomte.fr



Tél. 33 (0)3 81 66 52 00
www.cla.univ-fcomte.fr

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