

Affect & Emotion

Newsletter of the NCCR Affective Sciences

ADDING NEW DISCIPLINES:
COMPUTER SCIENCE
CLASSICS
DEVELOPMENTAL PSYCHOLOGY
EDUCATION

The Cocktail Party Effect

and other Focus Abilities



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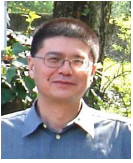
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RESEARCH FOCUS



Affective computing and emotion awareness in computer-mediated interaction

Prof. Thierry Pun

The use of computers in social and professional interaction is becoming widespread, but does communication via technology lose anything in terms of emotional understanding? And what impact, if any, might this have on the quality of the exchange? These are the questions that a new research project led by Mireille Betrancourt and Thierry Pun is seeking to answer. “The overall goal is to assess whether the knowledge of the emotional state of a partner in computer-mediated interaction informs the outcome,” says Pun. “Intuitively we think that, if you are given a sense of the emotions of your partner, then you can adapt your language and strategy accordingly, which would improve the result of a joint task.”

Currently, possible tasks for the project are the NASA Moon Survival exercise or role-playing exercises. Both tasks include strong collaborative aspects, encourage debate, and are emotionally engaging. “In a typical computer-mediated situation,” explains Betrancourt “it is hard to know the emotional state of our partner, especially if there is no video. In our study the participants will evaluate their emotions from time to time according to two or three classes of emotion, and this evaluation will be displayed to the partner in some groups, while in other groups the partners will not have this information. We will then be able to assess the impact of being aware of the others’ emotions in computer-mediated



Prof. Mireille Betrancourt

interaction.”

Another goal of the project is to develop an algorithm for an online assessment of emotion using input from behavioral patterns, such as facial expression and posture, alongside physiological signals, such as heartbeat and electrodermal activity. By comparing these measures to the reported emotional state an algorithm can be developed to predict emotion from behavioral and physiological cues. This could eventually be applied in computer-mediated interaction to provide emotional information, which could improve the quality of the interaction.

By bringing experts from computer science and psychology together the project has a very interdisciplinary flavour and both lead researchers believe its approach is quite distinct. As Betrancourt explains: “We are somewhere between laboratory psychology and real life situations, as we have an experimental setting where we are trying to control the conditions, but we are still tackling a complex authentic situation.” An ultimate goal is to provide affective science research with a toolbox of automatic methods to support the detection and classification of emotional states.

The pilot study for the project is planned for this month (November) with the aim of starting data collection at the beginning of next year ■



When social appraisal meets social referencing. A developmental perspective on interest

Prof. Fabrice Clément

Whether it is stamp collecting, metal-detecting or running marathons, our individual interests and passions can be unfathomable to those who do not share them. Through the study of young infants, a new research project is hoping to explore the development of the important epistemic emotion of interest in early life.

Led by Fabrice Clément, the project will observe the reactions of 8 to 18 month olds to objects that other people in their environment pay attention to. “For a long time I have wondered how we develop a certain interest”, explains Clément, “and the role of the social environment in the formation of our preferences, interests and passions. For example, why people in certain social contexts are more likely to develop a passion for football, whilst in other cases the passion might be for Shostakovich.” The study will collect behavioral and eye-tracking data from infants in contexts where people show interest towards a range of objects. Clément is currently exploring the best experimental method to consistently show and manipulate interest, and is considering the use of avatars rather than real people for this goal. “By using an avatar you could have a “pure” expression of

interest, which is unrelated to physical appearance or social membership.”

The other methodological decision to be made concerns the object chosen to elicit interest. The project initially plans to use an object as ‘neutral’ as possible, in terms of the level of interest it generates on its own. However, as the project develops, the intrinsic interest of the object will also be varied and different objects will be compared. “You’d be surprised what objects children are interested in,” Clément explains. “And we must take that into account as well”.

Clément hopes that the project will eventually be part of a larger piece of research to study how passions and interests develop throughout our lifetimes. He also hopes that this type of research could provide insight into some common mental health problems, particularly depression. “One of the major symptoms of depression is a loss of interest in areas and subjects that used to fascinate people,” he explains. “From a neuropsychological point of view I hope that, if we can develop some ideas about the mechanisms involved in the experience of interest, then perhaps we can apply them to work on depressed people who have lost this ability” ■

RESEARCH FOCUS



The translation of the emotions: from Greece to Rome

Prof. Damien Nelis

The language of emotions is a fascinating but complex subject. Through a comparison of Greek and Latin literary texts, a new study led by Damien Nelis aims to shed light on the cultural differences in the use of emotional language and on its development from ancient times.

“Recently there has been more work on emotions in the classics,” Nelis explains. “But it has tended to remain segregated into the study of either Greek or Latin texts. One of my main research interests is the relationship between Latin and Greek literature and this project aims to explore how Romans translate the emotional terms used in Greek literature. This will be both from a linguistic point of view and from a broader social and cultural view.”

Initially, the project plans to look at two authors: Cicero and Seneca. Both of these Roman writers produced a large body of work and were heavily influenced by their Greek fore-runners. Cicero wrote about rhetoric and how to play on the emotions of others, whilst Seneca wrote tragic poetry of a strikingly stark and violent kind. “The other important

thing to remember about these two writers,” explains Nelis. “Is that they were both writing in historically interesting times. Cicero was writing in the middle of the first century BC, when he felt the Roman Republic was crumbling around him, whereas Seneca was writing under the tyrant Nero in the first century AD. So their depictions of emotions may resonate against the historical context and give rise to some interesting emotional backdrops.”

As well as providing a fascinating cross-cultural comparison of emotional language, the study will aim to provide insight into the development and translation of emotional language over the years. “I hope the study will also contribute to the GRID project,” says Nelis. “This is a massive database that contains various translations of emotional terms. The project could also contribute to the study of historical linguistics and tracing emotional terms from their origins over time to understand how the linguistic expression of emotions may have changed” ■



How the brain changes its mind: Roles of emotional relevance and sleep in learning and decision making

Prof. Sophie Schwartz

It is well-known that sleep is important for health, but could sleep and dreams help organize the emotional experiences that occur during the day? This is one of the questions Sophie Schwartz will be exploring in her new project on the role of emotional relevance and sleep in learning and decision-making.

“Everyday our brain is bombarded by huge amounts of information,” says Schwartz. “But only a fraction of it is selected to be consolidated as memory. We think that emotions may be important in this process and the main goal of the project is to investigate whether and how our brains may prioritize information that has special emotional value for subsequent consolidation during sleep.”

The proposed studies use a combination of behavioral tasks and brain imaging to investigate the impact of sleep and dreaming on the consolidation of emotional memories. More specifically, the experimental procedure involves varying the emotional value attached to selected stimuli, for example by using aversive conditioning. The project will test whether these emotionally relevant stimuli undergo a distinct form of ‘offline’ reprocessing, in particular during sleep. This is done by testing the performance of participants on behavioral tasks involving these stimuli, and scanning the participants while they complete the tests to measure lasting changes in brain activity. “We aim at identifying key factors that contribute to the formation and remodeling of

memory traces in the brain,” says Schwartz. “We are particularly interested in understanding how emotion and sleep interact to optimize waking behavior.”

So far preliminary results using facial stimuli suggest that a face that has been conditioned, and therefore made emotionally relevant, is recognized better after a night’s sleep. “Participants can rapidly detect this target face even when it is morphed with other faces, thus even when the picture contains less information about the target face,” she says. “It is as if participants have become hypersensitive to distinctive features from this particular face. Of course this could have an adaptive purpose because our survival (and well-being) depends on our ability to instantaneously recognize someone or something that indicates a potential danger, even when sensory information might be poor or degraded.”

Schwartz hopes that the results of the study will provide several important insights into affective research alongside practical and clinical implications. “One aspect that is fascinating and that our approach can address,” she says “is how sleep, and perhaps dreaming, may affect the regulation of emotions. We know that one of the main impacts of sleep deprivation is increased impulsivity and emotional imbalance, and the results of this research could help understand the neural mechanisms by which this happens.” ■

INTERVIEW

Artist in Residence at CISA and CIN



Writer and visual artist, Jérémie Gindre, has spent the last six months as artist in residence at the Swiss Center for Affective Sciences (CISA) and the Geneva Neuroscience Center (CIN). He talks about his experience and how his time in the world of science has inspired his work.

It is often assumed that artists and scientists see the world very differently, but writer and visual artist Jérémie Gindre has discovered these differences can be very fertile. For the last six months he has been working with the Geneva Neuroscience Center and Swiss Center for Affective Sciences as part of the 'Artists-in-Labs' programme coordinated by the Zürich University of the Arts and financed by the Swiss Federal Office of Culture. His residency is coming to an end this month (November) and he has been amazed and inspired by what he has learnt, both about affective science and about affective scientists. "I made so many discoveries that there wouldn't be enough space to list them all here," he says. "For me it was a conceptual revelation, but it was also a revelation about our different roles. We have a similar curiosity and desire to understand the unknown and, although we don't use the same methods, the real discovery for me was how easy it was to share our ideas."

For the first two or three months of his residency, Gindre spent his time researching and gathering knowledge. He attended lectures and classes, and talked to various people in the two centers. However his place of artistic work remained his studio. "I quickly realized it would be impossible to actually work in a laboratory," he says. "And I felt it was important to put a distance between what I learnt at the centre and my working space, and recognize the difference between these two worlds." Never-

theless, Gindre did invite some of his scientist colleagues to visit his studio so he could share the artwork, literature and film that he felt were connected to their research. "Everyone was really interested," he says. "And it looks like this activity might continue after the residency finishes."

The main project that Gindre has been developing is a work of fiction that aims to provide a narrative context to the questions and answers that arise from affective science and neuroscience. This will be done in the form of six short stories, three of which he has already completed. "The first one is a story about hemi-spatial neglect," he says. "This is when someone has a problem in the right hemisphere of their brain so they tend to neglect everything that happens in the left half of their perception. The main protagonist has this problem and the idea was to tell the story from his point of view and communicate his experience. I didn't want to name the disorder, since the stories are aimed for the public rather than neuroscientists, and I tried not to get too specific about the technical detail, but use the clues as springs for the narration."

Gindre has already shared some of his short stories with colleagues at CISA and CIN and the reception has been very positive. "It was interesting because they gave me advice both as scientists and as readers. So they would say they really enjoyed this story as a reader but, as a scientist, they would perhaps change parts that weren't quite accurate." To mark

the ending of his residency, there will be a colloquium where both scientists and artists will speak on various subjects to provide opportunities for debate. The colloquium will be called 'Imaginary Friends', firstly because one of the main topics of discussion will be the imagination, and secondly to make a small joke around the question of whether artists and scientists are indeed 'imaginary' or 'real' friends.

However, according to Gindre's experience, it would seem that scientists and artists have the potential to be very real friends. "The experience will definitely inspire my future work," he says. "In fact I have so many ideas from my time as a resident artist that I would need at least five years to work on them all." Gindre has also been working on a series of drawings that isolate quotes from the neuroscience and affective science terminology. "It is like stealing concepts from the neuroscience world and bringing them into the art world to test them. If I take this word or term, what does it evoke in another context?" Indeed the similarity or parallels between the worlds of scientists and artists have been a strong inspiration for Gindre. "One of my greatest revelations was that scientists don't have strict answers. They are always debating concepts and, although they want to be sure, they have this approximate way of seeing things. I was very happy to discover that scientists think this way and are not as dogmatic as I thought!" ■

NEWS

Academic events

Workshop “**Emotions, Self, and Time**” (May 20-21, 2011). Organized by Patrizia Lombardo (Project “Affective Dynamics and Aesthetic emotions”) in collaboration with Kevin Mulligan (Project “Emotion, Feeling and Value”)

Interdisciplinary workshop “**On resentment**” (October 26-28, 2011). This event aimed to explore the nature of resentment and its diverse psychological, cultural and social manifestations. Organized by Bernardino Fantini in collaboration with the Centro de Ciencias Humanas y Sociales (Spanish Scientific Council). For more information: <http://histmed.unige.ch/colloques.php>.

Colloquium “**Ressentir et Emouvoir: Philosophes et écrivains face aux émotions**” (November 18, 2011). Organized by Patrizia Lombardo and Julien Zanetta. For more information: <http://www.affective-sciences.org/event/2949> ■

Grants received

Patrik Vuilleumier & **Corrado Corradi dell'Acqua** obtained an SNF grant to work on the function of the human insula function and empathy, in collaboration with groups in Fribourg and Zurich.

Vera Sacharin co-authored a successful SNF grant application with **Lorenz Goette** as the principal investigator (University of Lausanne) to study the influence of reference information (e.g., social comparisons) on emotion and decision making ■

Knowledge transfer activities

Festival Herisson (June 18, 2011). The NCCR Affective Sciences participated in the “Festival Hérissson” for families and children, which took place in Charrat (Valais). About 500 children attended the workshops.

Montreux Jazz (July 8, 2011). The NCCR Affective Sciences organized two workshops on “Sculpture et musique: les dimensions du mouvement” at the Montreux Jazz Festival. These workshops investigated the links between human vision and hearing. The Swiss Artist Etienne Krahenbühl and the pianist Emil Spanyi were invited to participate. The exchanges between the sculptor, the pianist and the scientists produced a fascinating interdisciplinary workshop.

Visit to UCLA and Stanford with UNIGE delegation (October 1 to 9, 2011). An official delegation of UNIGE visited UCLA and Stanford to present the Geneva Neuroscience Center (CIN) and the Swiss Center for Affective Sciences (CISA), and negotiate the potential exchange of students and faculty members with these two universities.

Frank Schramm, Stand-ups-Reporting Live from Ground Zero photography exhibition at the « Musée de l'Elysée », Lausanne (September 13 – November 20, 2011). NCCR researchers collaborated with the “Musée de l'Elysée” in Lausanne on the catalogue and guided tours associated to the exhibition that commemorated the 10th anniversary of September 11th ■

Staff changes

Amal Achaibou completed her thesis defense in July 2011, and has received a postdoc fellowship at UC Berkeley

Joël Billieux joined the Université Catholique de Louvain on September 1, 2011 as Assistant Professor in Clinical Psychology

Tobias Brosch joined David Sander's group as a senior postdoc (Maître-Assistant), working on the links between emotion and social cognition.

Eva Pool joined David Sander's group as a PhD student working on the dissociation between “liking” and “wanting” in humans, and its relation to affective relevance and attention.

Anne Schobert joined Patrik Vuilleumier's group as postdoctoral researcher in September 2011.

PhDs

In July 2011 **Amal Achaibou** successfully defended her PhD thesis “Fear Memories in the Human Brain: A Functional MRI Investigation of Acquisition and Inhibition of Aversive Conditioning”, under the direction of Patrik Vuilleumier & Sophie Schwartz.

Manuel Bachmann defended on July 4, 2011 his PhD thesis on “Power and emotion”, under the direction of Marianne Schmid-Mast.

Claudia Lardi successfully defended her PhD thesis “Self Defining Memories and Self Defining Future Projections” on July 1, 2011 at UNIGE under the direction of Martial Van der Linden ■

International Summer School in Affective Sciences (ISSAS 2011)

The third edition of the International Summer School in Affective Sciences (ISSAS 2011) took place on August 22-31 at the beautiful Château de Bossey, overlooking Lake Geneva and the Mont Blanc. The topic of the summer school, "Emotion expression and communication", brought together 40 students and 17 plenary speakers from psychology, neuroscience, ethology, philosophy, musicology, literature, rhetoric and the arts for 10 days of intense work and enjoyable human exchange. The program offered lectures and workshops by leading scholars on the major research paradigms and findings concerning the verbal and non-verbal expression and perception of emotion in humans and animals. Additionally, world-known representatives of the three main psychological theories of emotion explained the contribution of their approach to this field of inquiry. Emotion communication was analyzed in music, the visual arts, language, computer-mediated interactions, and complex multimodal contexts, where the

role of facial, vocal and gestural cues needs to be taken into consideration. Faculty and students alike actively participated in the discussions and hands-on workshops, which crystallized at the end of the summer school in 6 interdisciplinary research projects. One of them, entitled "Can my smell help you remember my smile?", implemented a neurobehavioral approach to study affect and odor and was voted best research project by the faculty panel, receiving the ISSAS prize. One more year, our summer school gave its participants the unique opportunity to meet with fellow students and world-class researchers, deepen their understanding of emotion research from an interdisciplinary perspective, and discover the Geneva area and its active emotion labs. The organization and scientific committee would like to express their gratitude to those who contributed to make ISSAS 2011 a success ■

Upcoming events

Les amis imaginaires – De la perception à l'interprétation (November 25-26, 2011). Colloquium organized by the Swiss Center for Affective Sciences and the Geneva Neuroscience Center on the occasion of Jeremie Gindre's completion of the program "Artists in residence" at both centers.

SNF – Special Call for Transfer-Projects, 10 Million CHF has been allocated by the Swiss Parliament in order to intensify the knowledge and the technology transfer into industry and society. December 15, 2011 is the deadline for sending to carole.varone (at) unige.ch a first short summary of your project.

Annual Research Forum (ARF), February 9-10, 2012. The NCCR's Annual Research Forum will take place at UNI Mail. All NCCR

researchers are expected to attend and present their latest results. More detail on the structure of this event will be announced shortly.

Site visit, June 25-26, 2012.

La Nuit de la Science, July 7 and 8, 2012. For the fourth time our NCCR will participate in this popular-science event. Interested in organizing an experiment or a workshop? Please send a short summary of your project to carole.varone (at) unige.ch by the end of December ■

New books

Afterwards—Contemporary Photography confronting the Past. NCCR researchers collaborated with Nathalie Herschdorfer, photography historian and curator, on a photo art book published by Thames & Hudson. For more information : <http://www.thamesandhudson.com/9780500543986.html>

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