

BOOK OF ABSTRACTS

International Interdisciplinary Forum 2017
21-23 April 2017, Berlin, Germany

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International Interdisciplinary Forum 2017

21-23 April 2017, Berlin, Germany

2nd Interdisciplinary Forum
Conference proceedings



International Interdisciplinary Forum 2017

Berlin, 21-23 April 2017

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The proceedings of the International Interdisciplinary Forum 2017 contain the abstracts of the presentations that the participants give during the conference. Each abstract is complemented by a list of research areas:

Law
Economics
Political science
Education science, social work
Cultural studies, history
Philosophy, theology
Art, music
Medicine
Biology, psychology
Physics, chemistry
Mathematics, computer science

Depending on project and presenter, these disciplines are dyed with the following meanings:

- Green letters: **disciplines in which the presenter has expertise**
- Red background: **disciplines from which the participant wishes to receive feedback**
- Green letters on red background: **presenter has expertise and looks for feedback**

Bio-engineering for bone tissue regeration : ethic and technical perspectives

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In traumatology, bone substitutes are often necessary for the treatment of large bone defects. Around one million bone grafting procedures are performed in the United States. The gold standard for restoring bone defects is autologous bone grafting i.e. the source of bone is from patient's body (often iliac crest). However, nearly 30% of surgeries involving an autograft lead to medical complications. If autograft is not possible grafting is performed from a cadaver but may rise an immune response and transmit diseases. A promising alternative way to direct grafting consists in producing in vitro biohybride materials, an association of a porous scaffold and osteocompetent cells. This tissue engineering approach may be technically feasible but ethical and economic issues remain: Where do the cells come from? Can this procedure be economically sustainable for the society?

How to measure and predict empathy with behavioral, physiological and computational methods

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Have you ever cried during a sad movie or enjoyed watching a cheerful child? In interactions, we often empathize with the people around us: we feel or understand what another human being is experiencing. Although empathy has been intensively studied in psychological research, measuring the empathy is still a challenging task. I will present different types of empathy as well as physiological and behavioral methods to measure them. Furthermore, I will show preliminary results of a psychological study that is addressing the measurement of empathy. This study explores how different types of empathy can be predicted from facial muscle activity and skin conductance response using machine learning technologies. Additionally, the study aims to identify specific patterns of empathy via clustering algorithms. There will be also time to discuss theory and methods of measuring empathy as well as to try out some measurements of empathy by yourself.

Trace analysis of heavy metals in water

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The needs of water monitoring in different environmental contexts, issued from European and national regulations, push towards real-time and in-situ analyses to improve the reliability of monitoring regarding the representativeness of sampling and getting faster information. Tolerable limits are now in the low $\mu\text{g/L}$ range. This requires portable, low-cost, environmentally friendly and sensitive instruments, which are able to analyze heavy metal concentrations in water. New membrane electrodes developed at the Laboratoire des Solides Irradiés are very sensitive and have for example a Limit of Detection (LOD) of $0.13 \mu\text{g/L}$ for Pb^{2+} that is five times lower than the LOD for the Screen Printed Electrodes. Another key feature of this new system is that the pre-concentration step is realized by adsorption, not by electro-deposition. The biocompatibility, low-cost, ease-of-use and in-situ sampling of the sensor enables the reduction of measurement costs, miniaturization and reliability.

The economic, legal and social cohesion of the e-mobility sector in the Netherlands. Conclusions for other countries, in particular Poland.

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The Netherlands is a country with a highly developed electromobility market. However, this would not be possible without a synchronized and coherent policy aimed at eliminating systemic, market, legal, infrastructural, technological and economic barriers, resulting in the removal of the key social barrier. The Dutch electromobility sector is systematically characterized by its interoperability and its consistency in the long term. In turn, the financing of new technologies is largely based on public-private partnership and on an effective mechanism for its application. The functioning economic system thus creates a good environment for investing in innovative solutions, which in turn results in a dynamic development in the field of transport. What actions did the Netherlands had to take to create an efficient electromobility system, providing energy security in this area and what conclusions can be drawn for Poland?

A Demystification of Consciousness

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Consciousness might be “just about the last surviving mystery” (Dennett, 1991), that is – we do not quite know how to think about it. Going away from a rather problematic dualistic view often demands to break with our habitual thinking of consciousness. Even neuroscientists speak of ‘memory activating this and that part of the brain’. Psychologists speak of ‘a self and its brain’. But famously, when looking inside the brain, there is ‘nobody home’. According to Dennett (1991), accepting dualism is antiscientific, as it is giving up on demystifying consciousness. Hence, he formulates new rules for an empirical theory of the mind. Dennett’s multiple drafts model of consciousness shall be discussed as a chance to radically negate a dualistic approach. Besides, other models and conceptions from any discipline, as well as defense for a dualistic view, are very welcome for the discussion.

COSME - the largest European support system for entrepreneurs: problems and resolutions

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COSME (Programme for the Competitiveness of Enterprises and small and medium-sized enterprises) and Horizon 2020 have been introduced in 2014. Both of them were designed to support creativeness and innovativeness of economy and science in the EU.

A significant part of these programs should strongly support development of SMEs. Unfortunately, it looks like majority of the European entrepreneurs do not participate in either of them regarding financial and non-financial aid.

Based on the preliminary research, it has been noticed that the main reason is that COSME and Horizon 2020 are not well-known and recognized by the entrepreneurs. It has been also observed that in central Europe the structural funds displace COSME and H2020 support. Additionally, pathologies and bureaucracy violate the process of participation. Additionally, both funds pass for “hard funds” among entrepreneurs.

It is necessary to reform the system of these programs to obtain the full impact on the European SMEs.

Linking Inequality and Happiness: The Impact of Fairness Perceptions in Europe

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Self-evaluated happiness is unequally distributed across individuals and across societies. Disclosing the puzzle of which determinants explain variation in happiness levels motivated research among a variety of disciplines. Income inequality is seen as one determinant of happiness. While past studies asked whether self-centred motives or relative concerns mediate the relationship, this study offers an approach based upon fairness perceptions. It argues that individual happiness levels do not directly depend upon income inequality per se; they are rather interrelated with underlying fairness conceptions individuals have towards those inequalities. The analysis distinguishes between procedural and distributional fairness to analyse the impact on happiness and tests the hypothesis empirically for 24 European countries. The empirical evidence is generally supportive of the proposed mechanism that fairness perceptions mediate the empirical relationship between inequality and happiness.

Molecular machines that can sense and respond to their environment

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Pore-formation is ubiquitous in nature and underpins a variety of key biological functions such as cell signalling and regulation. My research aims to exploit the exciting potential this phenomenon affords for on-demand release or mixing of different molecular species through the development of biomolecular machines that respond to different stimuli. One design strategy exploits membrane mediated protein communication, enabling protein channels to open in response to local increases in enzyme concentration. A second approach exploits UV light-responsive functionality present in the membrane to form nanopores.

This technology framework will underpin applications ranging from controlled smart drug delivery through to the bottom-up construction of synthetic cells. I will not only highlight some of my research, but place it in the context of the development of synthetic biology, and the economic and societal challenges that must be overcome to take full advantage of this promising field.

The Special Court for Sierra Leone: How the use of Leaders as Insider witnesses legitimised Impunity

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Article 1(1) of the Special Court for Sierra Leone's statute gave it competence, "to prosecute persons who bear the greatest responsibility for serious violations of international law and Sierra Leonean law committed in the territory of Sierra Leone since 30 November 1996, including the leaders who, in committing such crimes, have threatened the establishment of and implementation of the peace process in Sierra Leone." Insider witnesses can be close to the alleged perpetrators, and can provide the court with evidence regarding their motivation for committing those crimes and their state of mind at the time of the incident. The paper will aim to establish that the SCSL by using leaders as insider witness in which they subsequently evaded prosecution, legitimised impunity. Which is contrary to the mandate of the Court, and objectives of international criminal tribunals.

The Relevance of Person-Culture-Fit for Self-Esteem: Using a geographical method for answering a psychological question

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According to much psychological theory, fitting in one's socio-cultural context is described as a powerful predictor of self-esteem. In sharp contrast, however, empirical evidence suggests that such effects of person-culture-fit are small at best. In the present research, we seek to illuminate why these fit effects are so elusive. We argue that traditional demarcations of socio-cultural contexts by predefined spatial entities (e.g. cities or regions) fails to depict a person's actually relevant context. Therefore, we propose a new approach based on geographical coordinates allowing us to define customized contexts for each target person. We tested our new operationalization in a sample of 3.131.700 participants of an online survey in the US. Our results a) reveal a non-negligible relationship between person-culture-fit and self-esteem and b) strongly suggest that a main reason for weak effects in previous studies stems from an overly broad demarcation of socio-cultural contexts.

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Self-forming crowd teams - How micro-workers choose teammates

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Crowd work on platforms like Amazon Mechanical Turk is currently mostly seen as low pay assembly line piece work. In the current crowd work process individual workers from an anonymous and globally distributed workforce are paired up with instances of small, independent and homogenous tasks. This approach is not suitable for more complex tasks, which would require a team of workers to collaborate on a shared output.

Our approach of self-forming teams is seeking to give crowd workers the choice of whom to work with on a collaborative task and at the same time ensuring the effectiveness and high work quality of the resulting teams. Incorporating worker screening and evaluation as part of the team formation process which will be performed by the workers themselves, the task owner (requester) is relieved of these responsibilities.

I will present our observations on how workers choose teammates and the resulting conclusions on which attributes are helpful in making an informed decision.

Recent Irish and British Migration to Berlin – A Case of Lifestyle Migration?

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While the Irish and British communities in Berlin are still relatively small, they have grown significantly in the last couple of years: net migration from the UK has increased by 128% and from Ireland by 261% between 2006 and 2013. Yet, there has barely been any academic research into this migration trend and the two migrant communities so far. In my thesis I am aiming to find out what motivates Irish and British citizens to move to Berlin as well as how they contribute to Berlin's cityscape and how they are received in the city. I will be looking at these migration flows with the help of the lifestyle migration concept.

In my talk for the forum, I will be introducing the lifestyle migration concept, relate it to the Irish and British in Berlin and give a short summary of the findings from my survey.

Modernization and Democratization in Egypt: the obstacles and opportunities.

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The project seeks to answer the following set of questions. What are the obstacles that hindered and are still hindering Egypt from realizing a democratic modernized regime despite the several regime changes that occurred along its history? What is the reason for the incomplete attempts of democratization and modernization in Egypt? Why did mass protests not translate into democratization? Attempting to address the above questions, I will present a case study of the complicated Egyptian transition in the period from 2011 to 2014.

The plastic pollution impact in marine life and potential solutions toward ocean conservancy

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While many people picture a floating “Texas-sized island” when thinking of plastic in the ocean, the problem of plastic pollution is rather hidden, in the form of microplastics, constituting the so-called “plastic smog”. Scientific research quantified 269,000 metric tons and 5.25 trillion particles on the ocean’s surface. Plastic poses a danger for animals in the marine environment, suffering from ingestion or entanglement. On top of that, microplastics act as a sponge to toxic chemicals present in the sea, therefore also representing a threat to humans that find a source for food in the ocean. So what must be done to preserve marine life and ensure the sustainability of the oceans? Circular economy, re-design of plastic packaging, and the Extended Producer Responsibility arise as solutions. But scientists note three main actions to solve this global health crisis: public awareness, education and public laws; better and improved waste management; and corporate responsibility.

Digitalization, Development and the Protection of Personal Data - A Dichotomy of Envisioned Potential and Arising Concerns

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As the World bank has recognized in its 2016 Development Report, the global spread of internet access and information communication technology (ICT) promises to offer solutions to some of the pressing issues observed in the developing world. At the example of Kenya the presentation will address the dichotomy of both particular problems of developing countries which could be solved by further advancement of the ICT sector, as well as particular concerns and risks arising in light of the same. Besides its only recent up-rating to a lower middle income country, Kenya has developed into one of the tech-hotspots on the African continent housing the headquarters of multiple international companies and a vibrant start-up scene. The presentation and following discussion will take an interdisciplinary perspective on the topic of technological advancement in developing countries including legal, developmental and socioeconomic concerns.

Threat Perception, Conflict perception and Reconciliation

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In the context of protracted conflict, is there a relation between identity, democratic values and willingness for reconciliation, and in what way does this relation exist? The current study checks the relation between individual differences in identity perceptions of a given protracted conflict along religious, national, and civic dimensions and willingness for reconciliation. The research case study is the Arab Israeli conflict and was able to formulate a unified attitude which was applied to groups with asymmetrical power and also can serve scholars who study political mechanisms and dynamics involved protracted conflicts. The study examines the research model among citizens (N=2194) in Jordan, Tunisia, Palestine, and Israel. Results show that the perception of conflict and threat perception are major factors that mediate between the degree of agreement to reconciliation identity perceptions. Religious conflict perception decrease reconciliation and material perception increase it.

Neural Correlates of Pre-Dispositions in Innovation Adoption Research: Evidence from a fMRI Study

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Successfully bringing new products to market remains a critical challenge for companies. Previous literature states high failure rates for innovations, ranging between 50% and 90%. In investigating the cause for this phenomenon, past research focused on innovation-specific factors, neglecting other determinants such as the individual's inclination to change or the individual's satisfaction with the status quo. Since the investigation of such determinants are limited by traditional techniques (surveys or behavioral observation), a multi-method fMRI study has been conceptualized. The aim of this study is to empirically explore neural correlates of psychological constructs that are traditionally used in adoption theory. The focus lies on consumer predispositions like innate innovativeness and how consumers differing in these predispositions also differ in their neural reactions to incremental and radical product innovations.

Measurement of Multidimensional Inequality of well-being

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In recent years the discussion on distributional analysis for social justice has increasingly focused on inequality in opportunity rather than just inequality in earnings. The underlying idea is that total outcome is the fruit of aspects beyond individual responsibility e.g family background characteristics, individual effort and luck. The contribution of this paper is two fold; i) to analyse inequality of opportunity in a multidimensional setting i.e. jointly for multiple well-being indicators using Structural Equation Model that considers the different outcome variables as multiple indicators of the underlying well-being and explicitly accounts for the correlations among them ii) to apply the model to India and examine what part of inequality in well-being of an individual is due to observed circumstances beyond individual control, observed and unobserved variables of individual responsibility (degree of effort) and the influence of circumstances on effort (level of effort).