

Abstracts

Dr. Samuel Kwabena Obeng

"Rewarding Allegiance: Political Alignment and Fiscal Outcomes in Local Government"

This talk examines how the political alignment of local governments with the central government affects subnational fiscal outcomes. In theory, alignment could be rewarded with more intergovernmental transfers, or swing voters in unaligned constituencies could be targeted instead. By analysing data from Ghana, which has a complex decentralized system that seeks to preclude political alignment effects, we find that districts with aligned MPs and DCEs still receive more transfers, have higher district expenditure, and more internally generated funds. However, it is the swing districts that benefit the most from term to term: the 'safer' districts see lower increases in fiscal outcomes relative to the (potential) 'swing' districts. We also show strong electoral cycle effects, with peaks in fiscal outcomes mid-term and in election years.

Dr. Muhammad Umar Boodoo

"Putting the "Love of Humanity" Back in Corporate Philanthropy: The Case of Health Grants by Corporate Foundations in the US"

With the growing call for private sector actors to address global challenges, it is necessary to first assess whether regions with the greatest needs are accessing corporate philanthropy. In this talk, we ask whether corporate philanthropy is reaching those with the greatest health-care needs. Drawing on economic geography and corporate homophily, we found that corporate philanthropy tends to exacerbate health inequality as grants are destined for counties with fewer health problems. We therefore provide some guidance as to how this may be corrected from an ethical perspective.

Dr. Adil Mustafa

"Microfluidics in Biomedical Engineering"

Microfluidic systems are used to manipulate and handle fluids at length scales of few microns to millimeter. The advancements in fabrication technology has enabled researchers from various fields of science and technology to use microfluidics devices for many different applications. The work presented in this talk revolves around the design and development of microfluidic systems employed for quantification of droplet dissolution and viscosity, viable and non-viable cell sorting and long time cell culture.

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Dr Wing Ying Chow

"Using Solid-state NMR to Understand Biological Structures Essential to Multicellular Life"

In multicellular organisms, including humans, interactions between cells are necessary to enable life as we experience it. One key aspect of these interactions is the extracellular matrix (ECM). The ECM is made by cells but can change cell behaviour; it withstands external force but also transduces them to the cells; it undergoes structural changes as a result of the physiological and pathological states of the organism. In my talk, I will outline my research using solid-state nuclear magnetic resonance, a technique that can provide structural information on complex materials in functionally-relevant states, to gain new insights on the ECM that is relevant to human health and disease.

Idil Ismail

"High Throughput Screening of Mechanistic Hypotheses Using Machine Learning and Multi-Criteria Decision Making"

The prediction of the thermodynamic and kinetic properties of chemical reactions is increasingly being addressed by machine-learning (ML) methods such as artificial neural networks (ANNs). In this talk, I discuss the impact of the uncertainty associated with ML prediction of activation energies on observable properties of chemical reaction networks, as given by microkinetics simulations based on ML-predicted reaction rates. We use these simulations to suggest some guidelines for when ML-based activation energies can be reliable, and when one should take care in applications to kinetics modelling.

Sundeep Dhillon

"Teaching and learning using technology – the perspectives of English language teachers"

The presentation will provide an overview of the perspectives of English for Academic Purposes (EAP) teachers on technology enhanced learning. EAP is studied by international students in higher education contexts and the use of technology in EAP teaching and learning was majorly impacted by the Covid-19 pandemic which led to the closure of educational institutions and the sharp rise of online provision. For many teachers, the move to emergency remote teaching necessitated the development of skills and knowledge in the use of technology to deliver teaching and learning through a virtual medium.

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Dr Rajnaara Akhtar

"Weddings law reform in England and Wales; Working towards inclusivity"

Weddings law in England and Wales is outdated and archaic, steeped in historic traditions which do not reflect the needs of modern society. In this talk, research from a study funded by Nuffield Foundation titled 'When is a wedding not a marriage? Exploring non-legally binding ceremonies' will be presented, detailing the range of non-legally binding ceremonies which take place due to the lack of accommodation by the law of a range of belief's and practices which are commonplace in modern Britain.

Dr Modesta Alozie

"Niger Delta Petro-violence from the Perspective of Youths"

My research seeks to understand petro-violence from the perspective of youths, especially male youths. Specifically, my research analyses how young people in the Niger delta perceive, explain and justify their relationship with violence. I conducted in-depth interviews with 84 youths mostly from two ethnic groups (Ijaw and Ogoni) who have experienced oil-related violence in both direct and indirect forms. I also conducted interviews with 42 institutional representatives who have relevant knowledge about youth violence in the Niger Delta. The findings highlight the role of the political ecology of oil as well as institutional and social factors in shaping young people's experiences of violence.

Prof Ram Gopal

"Fake News Detection"

Untrustworthy content such as fake news and clickbait have become a pervasive problem on the Internet, causing significant socio-political problems around the world. Identifying untrustworthy content is a crucial step in countering them. In this talk, we propose examining websites' third-parties to identify their trustworthiness. Websites utilize third-parties, also known as their digital supply chains, to create and present content and help the website function. Third-parties are an important indication of a website's business model. Similar websites exhibit similarities in the third-parties they use. Using this perspective, we use machine learning and heuristic methods to discern similarities and dissimilarities in third-party usage, which we use to predict trustworthiness of websites. We demonstrate the effectiveness and robustness of our approach in predicting trustworthiness of websites from a database of News, Fake News, and Clickbait websites. Our approach can be easily and cost-effectively be implemented to reinforce current identification methods.

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Dr Shiwani Singh

"A New Modelling Scheme for Polymeric Fluid Dynamics"

Viscoelastic liquids such as polymer solutions exhibit striking differences compared to Newtonian (regular) fluids in a variety of flow situations ranging from turbulence to micro-fluidics devices. Despite its ubiquity and importance, most of our predictive knowledge of polymer-flow interactions comes from computational models which are either based on ad-hoc closure approximations or are constrained by statistical convergence. I will present an approximation-free and computationally efficient multi-scale modelling approach for polymer solutions which emerged by coupling the critical details of polymer dynamics with solvent at the kinetic level