Invitation for Expressions of Interest:
Emerging Technologies in the Life and Computational Sciences:
Opportunities, Challenges, and Threats for Transatlantic Cooperation

The Atlantic Declaration, published in June 2023 between the governments of the United States and the United Kingdom, calls for increased collaboration among public, private, and academic institutions in the areas of science, technology and security. Given the strengths of the University of Liverpool and the University of Georgia and the long history of collaboration between the institutions, UoL and UGA are looking to broaden and strengthen connectivity consistent with the key themes of the Declaration. In particular, there is a desire to develop new collaborations exploring the challenges, threats and opportunities posed by the rapid development of new technologies in the biological sciences, including the use of artificial intelligence and machine learning to facilitate faster discoveries with wide application and impact on peoples’ lives and livelihoods.

The universities plan to conduct two themed workshops in May 2024 at the University of Georgia to commemorate the 10th anniversary of the UGA-UoL partnership and to explore the challenges, opportunities and threats that this new knowledge and emerging technologies offer. Gathering expertise from each side of the Atlantic, the workshops will serve as a focal point to catalyze innovation and facilitate new grant applications and joint publications. External speakers will be invited to the workshop, including government representatives and non-governmental organizations working on biosecurity policy issues.

We are inviting expressions of interest from researchers to identify and guide topical group discussions at the workshop and to engage in small-group project planning with visiting UoL investigators within one or both of the following two themes:

Workshop Theme 1: Building Blocks, Tools and Systems

A handful of critical and emerging technologies are forming the backbone of new industries and shaping our national security landscape. These technologies include semiconductors, quantum technologies, artificial intelligence, cutting-edge telecommunications, and synthetic biology. As the home of world-leading companies and academic institutions, we are committed to ensuring the United States and the United Kingdom continue to lead across these sectors. We intend to do so by collaborating on tangible research and development joint efforts, deepening public-private dialogue across our priority technologies, jointly mobilizing private capital towards strategic technologies and by improving reciprocal talent flows.

-- Atlantic Declaration, June 8, 2023

Workshop 1 will bring together investigators proposing new and innovative research involving:

- Study of the constituent building blocks of complex biological systems, including new research in ‘omics and glycobiology, approaches to data repositories and management systems for large scale complex biological data, including molecular (structural, metabolomic, proteomic, genetic), physical (geologic, spatial), and ecological data; issues related to sharing data across institutions and platforms.
- **Emerging tools** in the computational and life sciences, capitalizing on advances in biological informatics, AI, and new processes and technology relevant to synthetic biology and pharmacology.
- **Systems** approaches in the life sciences, including One Health, food systems, disease ecology, environmental monitoring, and research into synthetic cellular systems and synthetic microbial communities; inquiry into how these new approaches can be used to model disease and its relationship to climate change and population movement; systems approaches to synthetic biology, synthetic microorganisms, and host-microbe interaction.

**Workshop Theme 2: Infection and Biosecurity**

*Building on the New Atlantic Charter, we commit to strengthening bilateral collaboration between our two nations on biological security, reflecting our shared ambition to bolster future health and economic resilience against a growing and diverse spectrum of biological threats (deliberate, accidental, or natural), including drug-resistant infections. To this end, we will increase our collaboration to overcome the market failures that prevent vital research and development of anti-microbial vaccines, therapeutics, and diagnostics – via mechanisms such as the Combating Antibiotic Resistant Bacteria Biopharmaceutical Accelerator (CARB-X). We will enhance our cooperation on tackling emerging infectious disease threats with pandemic or epidemic potential and promote biosafety, biosecurity, and responsible innovation in the biotechnology and life science sectors domestically and internationally to realize the full potential of the growing bioeconomy.*

-- Atlantic Declaration, June 8, 2023

Workshop 2 will bring together investigators working specifically in the area of infectious diseases and biosecurity to the extent not covered by Workshop Theme 1.

Topics to cover include zoonotic disease transmission, disease surveillance and forensics, countermeasures and vaccine development, diagnostics, as well as political systems and public, animal and environmental health infrastructure to mitigate emerging biological threats, including export control, sanctions, and supply chain management.

**How to express your interest**

Please send a letter of interest to Helen Carlin hcarlin@liverpool.ac.uk and Brian Watkins brianw@uga.edu by 15th March. Your letter should include the following:

- An abstract that summarizes the topics you are interested in pursuing, names of collaborators if known, a summary of the discussions you suggest would take place during the workshop time period, what you see them as accomplishing, including the development of new ideas that may address a challenge and the threat or opportunity you are seeking to address. Please include the questions you would like to consider and how they relate to the themes.
- Who you would see as your counterparts at UoL to work with in the workshop. (Liverpool staff will have travel costs covered)
• How you propose to manage the proposed discussions, including time allocation and what roles you and your counterparts may play.

There is no set word limit, we are interested in giving people space to express their ideas, but the EOI should be understandable to a lay person in relation to its overall purpose and what it seeks to address. It may also include more technical scientific explanations.

Please note the format of the workshop is not yet set and depends very much on responses. However, it is expected to include both large group meetings and one-on-one project-specific discussions among identified collaborators. At the end of the workshop, we would expect some concrete plans for collaboration on a particular project.