Miriam Buiten

University of St Gall

Institute of Law and Economics

Online platforms have fundamentally reshaped social, economic, and political landscapes. Platforms like Facebook, Google, YouTube, TikTok and Amazon enable users to discover unprecedented content, people, and products. Acting as powerful content moderators, these platforms rank, and recommend information. A few dominant platforms wield considerable influence as de facto governors of the internet, determining what content reaches and resonates with users. Platforms have insufficiently acknowledged this public role, leading to controversies over illegal and harmful content and the creation of "filter bubbles." Consequently, platforms face increased pressure from policymakers to address these systemic problems.

Miriam Buiten's research addresses the regulatory challenges posed by platforms, exploring how the law should shape their role and influence. Her interdisciplinary approach integrates insights from law, economics, business, and media studies to comprehensively analyse platforms and advocate for effective regulation. Her goal is to foster a more informed and sustainable approach to regulating platforms, based on sound principles and theoretical frameworks. Buiten's work not only proposes concrete legal solutions but also offers broader reflections on the governance of emerging technologies.

Committed to influencing policymaking and public discourse, Buiten's research has earned recognition in prestigious journals and won her a research award from the German Law and Economics Association. Her insights also resonate in various media outlets through interviews and podcasts. Additionally, Buiten actively engages with EU policymakers at the European Commission, the European Parliament, and the OECD on platform and AI regulation. Beyond academia and policy circles, Buiten bridges theory with practice by addressing legal professionals and industry experts at major national and international conferences.

Yiwen Chu

Eidgenössische Technische Hochschule Zürich

Department of Physics

There is now a worldwide effort to harness the power of quantum mechanics to perform computations more efficiently, communicate information more securely, and measure physical quantities with unprecedented precision. However, many basic questions remain unanswered, such as: From what physical objects should these new technologies be made? How complex of a system can we build while still being able to control and measure its quantum mechanical behavior? Is quantum mechanics even applicable beyond a certain level of complexity, all the way to macroscopic, everyday objects? This last fundamental question has intrigued physicists since the early days of quantum mechanics, as evidenced by Schrödinger's famous thought experiment about a cat in a box.

Yiwen Chu's research group at ETH Zürich is exploring these questions by building devices that combine different quantum systems and investigating the quantum mechanical behavior of massive, mechanical objects. One example of an experiment performed by the group with interesting implications for fundamental physics is the realization of a quantum superposition of mechanical vibrations in a 16-microgram crystal, making it the most massive object to exhibit such quantum behavior so far. The group also focuses on building hybrid quantum devices by using mechanical motion as an interface between diverse quantum objects, such as electronic circuits for performing computations and light for carrying information over long distances. In addition to being crucial building blocks for new technologies, such hybrid devices advance the frontiers of complexity in quantum systems, which is a long-term goal of Chu's research.

Perrine Schumacher

Faculté de Philosophie et Lettres, Université de Liège

Faculté de Traduction et d'Interprétation, Université de Genève

In recent years, the language and translation industry has been shaped by a technological boom, largely driven by the advent of AI tools such as neural machine translation (MT) and, lately, chatbots. Hence, the professional landscape is changing rapidly, making the adaptation of translation training programs a critical and pressing need.

In this context, Perrine Schumacher's work focuses on a fast-growing practice in the language services sector: post-editing (PE), i.e. the human intervention to amend and improve a machine-translated text. Her research aims to investigate the impact of post-editing on text quality in an academic context, to assess translation students' knowledge and perceptions of MT and PE and to contribute to the current discussion on the updating of translation training. Thus, she conducted two controlled experiments with translation students, comparing the outputs of two translation processes from English into French: human translation and post-editing. Her analysis combined quantitative approaches (descriptive and inferential statistics, and automatic linguistic analysis) with qualitative methods (human quality assessment and linguistic error analysis).

Drawing on her findings, she strongly advocates for the balanced integration of PE into translation curricula, emphasising the development of informed and responsible use of MT tools. Through her work, she hopes to contribute to the promotion of MT literacy among both translation professionals and students, stressing the need to increase their awareness of the benefits and limitations of AI tools and to equip them with the skills to navigate and leverage these emerging technologies effectively.

Giulia Tagliabue

Ecole Polytechnique de Lausanne

Institute of Mechanical Engineering

Prof. Tagliabue's research in nanophotonics for energy aims at uncovering and engineering emerging light energy conversion pathways enabled by non-equilibrium and interfacial effects in nanomaterials and at solid/liquid interfaces.

Nanophotonics has indeed transformed light-matter interactions at the nanoscale, with optical nanoantennas bridging the size gap between the light wavelength and charge, heat and ion transport scales. This enables unprecedented control over energy conversion processes and the harnessing of non-equilibrium phenomena, though understanding remains challenging due to complex multi-physics interactions. By developing controlled experimental platforms and bridging micro- and macro-scale characterization methods, Prof. Tagliabue's work on the optoelectronics of nanomaterials and solid/liquid interfaces has clarified the mechanisms underlying three complementary light energy conversion pathways and demonstrated associated proof-of-concept devices.

Plasmonic Catalysis. Metallic nanoantennas generate non-equilibrium charge carriers that enhance chemical reactions. Prof. Tagliabue's work revealed critical details of charge dynamics and transfer at interfaces, advancing plasmonic catalysts for solar fuels production and photochemical energy storage.

Hydrovoltaic Energy Generation. Fluid flow over charged surfaces results in electrical energy generation (hydrovoltaic effect). Prof. Tagliabue's research highlighted the critical role of chemical equilibrium at the interface. Her group demonstrated efficient evaporation-driven hydrovoltaic devices that work at high salt concentrations (seawater), opening new possibilities for renewable energy production.

Thermonanophotonics. Absorbing optical nanoantennas can act as fast nano heaters. Prof. Tagliabue's research clarified photo-thermo-optical effects in silicon nanoresonators and led to reconfigurable metalens designs, enabling adaptable devices in optics and energy.