

Distinguished Lectures

Spring 2024



Dr. Martin Maier

Professor

Institut National de la Recherche
Scientifique Montréal, Canada

The Hitchhiker's Guide to the Multiverse: From Gutenberg's Printing Press to Metaverse's Peak-Experience Machine

Monday, February 12, 2024

Reception with refreshments: 10:30 a.m.

Lecture: 11:00 a.m.-12:00 noon

University Ballroom, LSC

Remembering the Future: From Man-Computer Symbiosis in the 60's to Symbiotic INTERBEING in 6G

Tuesday, February 13, 2024

Lecture: 9:30-10:30 a.m.

Lory Student Center 386

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Colorado State University's Information Science
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In conjunction with the Department of Computer Science and
Department of Electrical and Computer Engineering Seminar Series

Abstracts

The Hitchhiker's Guide to the Multiverse: From Gutenberg's Printing Press to Metaverse's Peak-Experience Machine

The twenty-first century has been hailed by renowned historians like Niall Ferguson as the "Age of Networks." Our era is the "Second Networked Era," with the personal computer in the role of the printing press and a world connected as never before through the Internet. We don't yet know what the Internet truly is. While Gutenberg's printing press gave birth to printing, the Internet's full potential still remains to be unleashed in the years to come. Measured in Gutenberg time, we stand today at about the year 1483 with the progression of disruption in society. Note that Luther was born in the year 1483. Hence, the Internet's Martin Luther is yet to come. This Distinguished Lecture starts with Johannes Gutenberg's printing press, which played a pivotal role in the "First Networked Era" not only in the spread of knowledge but also in Martin Luther's reformation of society, heralding 300 years of Renaissance. We then briefly review the history of past media revolutions and show that the next Internet revolution will be the so-called Web3 Token Economy, the successor of today's Web2 Platform Economy and the harbinger of the emerging Metaverse, the predecessor of tomorrow's Multiverse. We present our ideas and findings on how to realize the reality-virtuality continuum of the Metaverse, the creation of tokenized digital twins for raising our collective intelligence, as well as the beneficial impact of persuasive social robots and advanced extended reality (XR) wearables on the pro-social behavior and cognitive assistance of humans. We conclude by sharing our thoughts on how 6G and Next G networks' audacious goals aim at delivering digital world experiences (DWEs) across physical, digital, and biological worlds that are at once brand new and very ancient, thereby giving access to the upper range of human peak-experiences that may lift the veil of Metareality and may place us in the midst of the next Renaissance referred to as Eleusis 2.0.

Remembering the Future: From Man-Computer Symbiosis in the 60's to Symbiotic INTERBEING in 6G

Increasingly, conversations about AI take on the tone and themes of Elon Musk-like predictions about a future in which intelligent robots replace humans first as workers, and then as a species. What is less known is that this Turing-derived vision of AI is not an inevitable future, but one option of two competing visions of AI. For our species' sake, we ought to remember the future envisioned by two AI pioneers in the 60's and before. While Turing's vision of an anthropomorphic (human-equivalent) automative AI puts an emphasis on automation and imitation of existing human behavior, Licklider's alternative vision of AI puts an emphasis on augmentation and discovery of new human behavior, aiming at a hybrid (human-machine) creative AI that collaborates in symbiosis with humans to usher in a post-human future of cyborg (cybernetic organism) intelligence instead of Turing's android (machine) superintelligence. In this seminar, we first review our work on the so-called human-in-the-loop Tactile Internet, which adds a new dimension to human-to-machine interaction by enabling tactile and haptic sensations, for a race with (rather than against) machines. Further, we explore the symbiosis of blockchain technologies, most notably the decentralized autonomous organization (DAO), with other key technologies such as AI and robots, putting our focus on the Tactile Internet for advanced human-to-machine interaction via crowdsourcing of human expertise and enhancing the human capabilities of unskilled crowd members. Finally, we present our concept of INTERBEING based on the symbiosis between INTERNET and human BEING, which leverages on hyperintelligent life-like cybernetic organisms to lay the foundation for the intelligentization of future 6G networks by benefiting from not only recently emerging generative AI (high-tech) but also nature's more-than-human intelligence derived from its sacred way of knowing shaped by eons of evolution (no-tech).

Speaker Biography

Martin Maier is a Professor with the Institut National de la Recherche Scientifique (INRS), Montréal, Canada. He was educated at the Technical University of Berlin, Germany, and received MSc and PhD degrees both with distinctions (summa cum laude) in 1998 and 2003, respectively. In 2003, he was a postdoc fellow at the Massachusetts Institute of Technology (MIT), Cambridge, MA. He was a visiting professor at Stanford University, Stanford, CA, 2006 through 2007. He was a co-recipient of the 2009 IEEE Communications Society Best Tutorial Paper Award. Further, he was a Marie Curie IIF Fellow of the European Commission from 2014 through 2015. In 2017, he received the Friedrich Wilhelm Bessel Research Award from the Alexander von Humboldt (AvH) Foundation in recognition of his accomplishments in research on FiWi-enhanced mobile networks. In 2017, he was named one of the three most promising scientists in the category "Contribution to a better society" of the Marie Skłodowska-Curie Actions (MSCA) 2017 Prize Award of the European Commission. In 2019/2020, he held a UC3M-Banco de Santander Excellence Chair at Universidad Carlos III de Madrid (UC3M), Madrid, Spain. He also received the 2023 Technical Achievement Award of the IEEE Communication Society Tactile Internet Technical Committee for his contributions to 6G/Next G and the Design of Metaverse Concepts and Architectures as well as the 2023 Outstanding Paper Award of the IEEE Computer Society Bio-Inspired Computing Special Technical Community for his contributions to the Symbiosis of INTERNET and human BEING (INTERBEING). He is co-author of the book "Toward 6G: A New Era of Convergence" (Wiley-IEEE Press, 2021) and author of the sequel "6G and Onward to Next G: The Road to the Multiverse" (Wiley-IEEE Press, 2023).

To arrange a meeting with the speaker, please contact Prof. Anura Jayasumana {Anura.Jayasumana@ColoState.edu}.

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