



OIST

OKINAWA INSTITUTE OF SCIENCE AND TECHNOLOGY
沖縄科学技術大学院大学

VISITING PROGRAM

Public Lecture

A Few Bloody Examples of the Unreasonable Effectiveness of Mathematics in Vascular Surgery

We will give some examples of needs identified by vascular surgeons that we have found solutions to using mathematics of various forms: by-pass occlusions, guide wire movement, abdominal aorta aneurysm prediction, stent removal, and controlled compression. These examples follow the Biodesign philosophy cultivated at Stanford, where a lot of effort is put into finding the right challenge before trying to solve it.

2026
THU.

Apr. 23

19:00–20:00

HYBRID

C210, ZOOM



For zoom and other details scan QR code or visit oist.jp/visiting-program



Oliver Aalami

Stanford Byers Center for Biodesign

Dr. Oliver Aalami is a vascular surgeon and the Director of Digital Health at the Stanford Byers Center for Biodesign. His primary mission is to advance healthcare access through digital health education, research, and translation. At Stanford, he serves as the course director for Biodesign for Digital Health and Building for Digital Health and is a co-founder of Spezi (formerly CardinalKit), an open-source framework developed to support sensor-based mobile research. His recent work focuses on the intersection of AI and patient care, including the development of an FDA-cleared open-source computer vision model for opportunistic abdominal aortic diameter quantification on routine CT scans. Additionally, he is developing LLMonFHIR, a system that allows consumers to "chat" with their medical records (FHIR resources) on mobile devices, as well as AI-assisted coaching tools to guide patients through therapy.



Torbjörn Lundh

Chalmers University of Technology | University of Gothenburg

Torbjörn "Toby" Lundh is currently a TSVP Visiting Scholar at OIST and professor in biomathematics at the Department of Mathematical Sciences at Chalmers University of Technology and the University of Gothenburg, Sweden. In his early career, he got an MSc in Engineering Physics, and then a PhD in Mathematics in potential theory at Uppsala University. After that, he did three postdocs: Cambridge; Stony Brook; and at the Institute Mittag-Leffler. He worked in that area until 2010, when he made a switch to mathematical biology: morphology, evolution, artificial life, speciation, game theory, population dynamics, cancer treatment, and pandemics. Furthermore, he has also been engaged in problems from surgery, and in particular, vascular surgery. That interest brought him to Stanford; first to vascular surgery 2015-2016, and two years ago, to Biodesign there.

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CONTACT

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