

Title: Smart and Connected Bioelectronics for Advancing Human Healthcare and Human-Machine Interfaces



Bio: Dr. Yeo is a Woodruff Faculty Fellow and Associate Professor in the George W. Woodruff School of Mechanical Engineering and the Wallace H. Coulter Department of Biomedical Engineering, and the Director of the Center for Human-Centric Interfaces and Engineering (CHCIE) at Georgia Institute of Technology. His research focuses on the areas of nano-/microengineering, advanced soft materials, soft packaging, and bio-electromechanical systems, with an emphasis on stretchable hybrid electronics. Dr. Yeo received his PhD in mechanical engineering at the University of Washington, Seattle in 2011. From 2011-2013, he worked as a postdoctoral research fellow at the Beckman Institute and Frederick Seitz Materials Research Center at the University of Illinois at Urbana-Champaign. Dr. Yeo has published over 120 peer-reviewed articles, including many in top-quality journals, including Nature Machine Intelligence, Nature Materials, Nature Communications, and Science Advances. Dr. Yeo is an IEEE Senior Member and a recipient of a number of awards, including NIH R01 Award, NIH Trailblazer Young Investigator Award, IEEE Outstanding Atlanta Engineer Award, Imlay Innovation Award, Lucy G. Moses Lectureship Award - Icahn School of Medicine at Mount Sinai, Sensors Young Investigator Award, American Heart Association Innovative Project Award, and Samsung Global Research Outreach Award.

Abstract: In this talk, Dr. Yeo will discuss the fundamental study in soft materials, flexible mechanics, nanomanufacturing, machine learning, and system packaging to develop nanomembrane-based intelligent flexible biosensors and bioelectronics. He will also talk about how fundamental science and knowledge can be applied to develop various types of soft sensors, circuits, and integrated bioelectronics. Also, he will share how different printing processes are used to manufacture nano-microscale sensors and circuit interconnects, while discussing the details of hard-soft materials integration and soft packaging strategies. Afterward, he will share application examples of flexible electronic platforms such as portable health monitoring devices, disease diagnostic devices, therapeutic systems, and human-machine interface systems. Finally, more details of sensor design, circuits, manufacturing, system optimization, signal processing, machine learning, and data classification will be shared at high levels.

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