

Speaker: Amir Porat, PhD student Tel Aviv University

Date: March 22, 2021, at 16:10 – 17:00

Title: A General 3D Model for Growth Dynamics of Sensory-Growth Systems

Abstract: Plant shoots and roots capitalize on their slender structures to successfully negotiate unstructured environments while employing a combination of two classes of growth-driven movements: tropic responses, growing toward or away from an external stimulus, and inherent nastic movements, such as periodic circumnutations, which promote exploration.

To emulate these complex growth dynamics in a 3D environment, we recently developed a general model for the growth of rod-like organs, adopting the Frenet-Serret frame and implementing growth-driven movements.

Aside from being a tool to deepen our understanding of plant response dynamics, the model can be used for novel control systems in newly developed self-growing robots.

Bio

Amir Porat is currently a PhD student under the supervision of Dr. Yasmine Meroz in the Tel Aviv University, and is part of the EU funded GrowBot project (<https://www.growbot.eu/>). His research interests are plant biomechanics, mathematical models of growth and soft matter physics.