

## סמינריון

הנך מוזמן/ת להרצאה סמינריונית של הפקולטה להנדסת מכונות שתתקיים ביום ד' 12.01.2022  
(י' בשבט, תשפ"ב), בשעה 13:30 באמצעות הזום : <https://technion.zoom.us/j/XXXXXX>

**מרצה :** בנימין גרויסר

**מנחה :** פרופ' אלון וולף

**על הנושא :**

### **Non Ionizing Method for Estimating Scoliotic Skeletal Alignment Learned from Anatomical Surface and Structural Data**

The seminar will be given in English

#### **תקציר ההרצאה :**

This presentation will cover the techniques developed and methods employed in the construction of a unique multi-modal dataset for investigation of Adolescent Idiopathic Scoliosis (AIS). Surface topographic scans are captured, both using a high-resolution full-body scanner as well as depth imaging captured simultaneously with biplanar radiography.

Combining surface scans with 3D reconstructions of skeletal anatomy enables stochastic models to be built that predict skeletal anatomy from surface shape. A key contribution of this work is the implementation of a U-net architecture for triangulated mesh surfaces used bring surface scans into dense correspondence with a human body template.

Surface parameters, both published and novel, are computed across a range of postures for all subjects in the dataset; these parameters show significant correlations both with radiographic measurements as well as patient reported self-image questionnaires.

Finally, registered surface models can be used to train regression models that predict skeletal alignment, including a CNN-based model to predict Cobb angle directly from surface topography.

בברכה,

ד"ר איתי סאס

מרכז הסמינרים