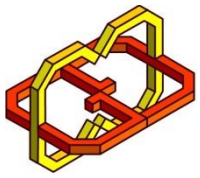

Technion-Israel Institute of Technology

Computer Science Department

Center for Graphics and Geometric Computing

CGGC Seminar

Prof. Alla Sheffer

Computer Science, University of British Columbia

Human-Centered Geometry Processing

Humans can ubiquitously communicate and reason about both tangible and abstract shape properties. Artists can succinctly convey complex shapes to a broad audience using a range of mediums; and human observers can effortlessly analyze and agree on observed shape properties such as upright-orientation or style. While perception research provides some clues as to the mental processes humans employ when performing these tasks, concrete and quantifiable explanations of these actions are frequently lacking. Our recent research aims to quantify the geometric properties underlying human shape communication and analysis, and to develop algorithms that successfully replicate human abilities in these domains. In my talk I will survey our efforts in this space, focusing on ways to incorporate insights about human perception into algorithm design. My talk will include examples across a wide range of 2D and 3D geometry processing tasks, including shape orientation, VR interfaces for shape modeling, raw sketch consolidation; clip-art vectorization; clip-art reshaping; sketch-based 3D reconstruction; and style analysis and transfer for man-made shapes. The common thread in our proposed solutions to these problems is the use of insights derived from perception and design literature combined with derivation of quantitative properties via targeted human perception studies and machine learning from scarce data.

Bio:

Alla Sheffer received her PhD from the Hebrew University in 1999 and is currently a full professor at the University of British Columbia, Canada, where she investigates algorithms for shape modeling and analysis in the context of computer graphics applications. She is best known for her research on mesh parameterization, hexahedral meshing, computational garment design, and perception driven shape modeling. Dr. Sheffer is a Fellow of ACM, Fellow of IEEE and Fellow of the Royal Society of Canada. She is a Member of SIGGRAPH Academy, a recipient of the Canadian Human Computer Communications Society Achievement Award'18 and a UBC Killam

Research Award'19. Her research has been supported by faculty awards from IBM, Google and Adobe, a Killam Research Fellowship, and an Audi Production Award. Dr. Sheffer has served as an Associate Editor of all three major computer graphics journals (ACM Transactions on Graphics, IEEE Transactions on Visualization Computer Graphics, and Eurographics Computer Graphics Forum). She is the Technical Papers Chair for SIGGRAPH'23 and served as a program co-chair for Eurographics'18, Symposium on Geometry Processing'06, and Shape Modeling'13. She was a general co-chair for the Pacific Graphics'18 and Geometric Modeling and Processing'19 conferences. Dr. Sheffer had co-authored over 100 peer-reviewed publications, including 50 papers in ACM Transactions on Graphics, the topmost competitive CG venue. She holds six recent patents on methods for sketch analysis and hexahedral mesh generation.

The lecture will be held on Tuesday, 27.06.2023, at 11:30, Auditorium GOT 012, visitors center, Taub building floor- 0

הזמנה זו מהווה אישור כניסה עם רכב לטכניון