

SMU Department of Mechanical Engineering

SEMINAR

“Geometric Approaches to Optimal Path Planning for Rigid and Flexible Needles”

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Abstract: Medical procedures such as extracting tissue samples for biopsies, brachytherapy (a form of radiation therapy where a radiation source is placed inside of the area requiring treatment), drug injection for anesthesia, and some implantable device procedures, require careful planning for the insertion point of the needle and, for flexible needles, of the needle trajectory, aiming to minimize damage to healthy tissues while maximizing the effect of the medical procedure. In many cases, flexible, bevel tip needles can be steered to provide better solutions or to reach targets that are otherwise inaccessible to stiff needles. This talk will discuss geometric algorithms for finding optimal paths for stiff and flexible needles.

Bio: Ovidiu Daescu got his bachelor degree in Computer Science and Automation from the Technical Military Academy, Bucharest, Romania, and master and PhD degrees in Computer Science and Engineering from the University of Notre Dame, IN, USA, in 1997 and 2000, respectively. Currently, he is Assistant Department Head and Associate Professor in the Department of Computer Science of the University of Texas at Dallas. His research interests include design and analysis of sequential and parallel algorithms, geometric computing, bio-medical computing, and human device interaction. His research has appeared in prestigious journals and conferences. He has been program committee member and reviewer for many conferences and journals.