

SPRING 2007 SEMINAR SERIES

Date: Thursday, April 5, 2007

Time: 11:00 am - 12:00 pm

Room: SL 165

Reception at 10:45 am (cookies and refreshments served)

Everyone is invited

Volume Fusion: A New Volume Modeling Approach

**Dr. Shiaofen Fang, Associate Professor of Computer Science, IUPUI,
Indianapolis, IN.**

Abstract. General volume fusion framework for 3D modeling, interaction, and visualization applications with complex volumetric scenes composed of virtually any types of conventional and unconventional object representations will be presented potentially for a wide range of volumetric applications. The process of volume fusion includes scene expression and scene evaluation. A volume scene evaluation based on slice sweeping approach is employed to provide a general computational framework that extracts volumetric information of the scene expression and then fuse them by specified fusion functions. The key issues of volume fusion are scene tree design and fusion function design. Through the unified volume fusion framework, different tree structures and fusion functions may result in different outputs (i.e. applications) after scene evaluation. Several case studies with practical applications will be discussed in detail, and their experimental results demonstrate the effectiveness, flexibility and generality of our volume fusion algorithms for 3D interactive volume applications.

About the Speaker. Dr. Shiaofen Fang is an Associate Professor of Computer Science at Indiana University Purdue University Indianapolis (IUPUI). He also serves as the director of the Center for Visual Information Sensing and Computing (VISIC), the director of the newly established IUPUI Signature Center for Bio-Computing, and the interim chair of the Department of Computer and Information Science at IUPUI. Prof. Fang's research interests are primarily in volume visualization, medical imaging, geometric modeling, and computer graphics. He has published extensively in these areas, and his research has been funded by the National Science Foundation (NSF), National Institutes of Health (NIH) and the National Institute of Justice (NIJ). Prof. Fang has served in several NSF review panels and in the program committees of many international conferences. He is currently working closely with biomedical researchers at the Indiana University School of Medicine on 3D image based medical diagnostic techniques.