UNIVERSITY OF CENTRAL FLORIDA

CENTER FOR RESEARCH IN COMPUTER VISION

Dr. Mert R. Sabuncu

Cornell University

"VoxelMorph: Unsupervised learning for fast probabilistic diffeomorphic registration"

Friday, April 26, 2019 · 2:30PM · HEC 101AB



ABSTRACT

In this talk, I will present VoxelMorph - a fast learning-based framework for deformable, pairwise image registration. Traditional registration methods optimize an objective function for each pair of images, which can be time-consuming for large datasets and/or with rich deformation models. In contrast to this approach, and building on recent learning-based methods, we formulate registration as a function that maps an input image pair to a deformation field that aligns these images. We parameterize the function via a convolutional neural network (CNN), and optimize the parameters of the neural network on a set of images. Given a new pair of scans, VoxelMorph rapidly computes a deformation field by directly evaluating the function. I will present some empirical results that demonstrate the capabilities of our approach and compare performance with state-of-the-art methods. Our code is freely available at https://github.com/voxelmorph/voxelmorph.

BIOGRAPHY

Dr. Sabuncu received a Ph.D. in Electrical Engineering from Princeton University. He was then a postdoctoral fellow at MIT Computer Science and Artificial Intelligence Laboratory. After several years as a faculty member at Martinos Center for Biomedical Imaging (Harvard Medical School and Massachusetts General Hospital), he moved to Cornell as Assistant Professor in Electrical and Computer Engineering, with a secondary appointment in Biomedical Engineering. Broadly speaking, his research interests lie at the intersection of artificial intelligence, biomedical data analysis, and healthcare. Dr. Sabuncu is the recipient of several awards including NSF CAREER and NIH K25.

CRCV | Center for Research in Computer Vision
4328 Scorpius Street · Suite 245 · Orlando, FL 32816-2365 · (407) 823-1119 · FAX (407) 823-0594
http://www.crcv.ucf.edu