

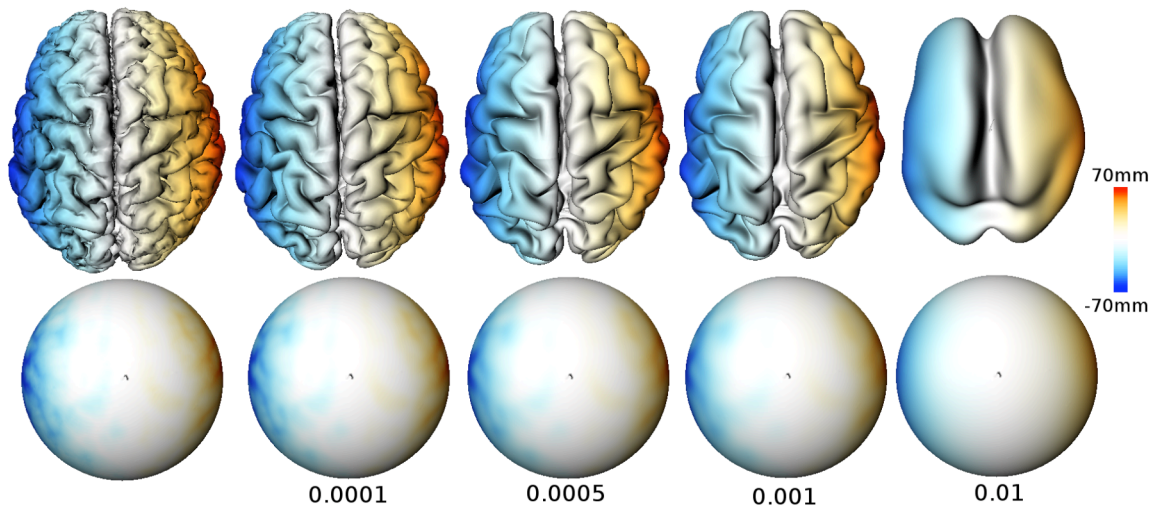


# New Course Announcement

## STAT 692 Medical Image Analysis

Spring 2007 semester

TR 11:00AM-12:15PM Room 133 SMI



**Instructor:** Moo K. Chung (email://mchung@stat.wisc.edu)

**Course webpage:** <http://www.stat.wisc.edu/~mchung/teaching/MIA>

**Course aim:** To present mathematical and statistical techniques used in the field of medical image analysis, with an emphasis on computer implementation. We will study algorithms and strategies based on the use of various models to solve the following medical imaging problems: representation, visualization, feature extraction, denoising, image registration, morphometry (deformable), quantification and validation.

**Target audience:** This course is designed for researchers and students who wish to analyze and model medical image data quantitatively. The course material is applicable to a wide variety of medical and biological imaging problems.

**Requirements:** Basic knowledge in statistics, mathematics and computer programming.

**Course topics:** digital image data, random fields, Hilbert space, Fourier analysis, wavelets, linear and nonlinear filters, time series, multivariate techniques, pattern recognition, shape modeling, deformable template, curve and surface geometry, finite element methods (FEM), similarity measures, image simulation, image registration (2D surface & 3D volume), statistical parametric mapping (SPM), multiple comparison correction, computational statistics, validation techniques.

**Course evaluation:** For three credits, students are required to submit a project report and do an oral presentation at the end of the semester. For one or two credits, consult with the instructor. Students can use their own image data (not necessarily medical or biological in nature) after consultation with the instructor.