Xiang Huang, Ph.D.

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OBJECTIVE

A challenging position as a statistician/biostatistician utilizing expertise in survival analysis, longitudinal analysis, data mining, optimization and mathematical/statistical modeling

QUALIFICATIONS

- Strong analytical skills and extensive experience in large-scale data analysis, survival analysis, longitudinal analysis, image processing/analysis using methods based on partial differential equations and the calculus of variations, and model selection
- Advanced knowledge of probability theory and mathematical statistics, exceptional ability to formulate problems into mathematical terms and explain abstract technical and mathematical concepts
- Proficient programming skills in R, MATLAB, and SAS
- Effective communication and collaboration with investigators from multidisciplinary fields; excellent presentation skills
- Track record of publications in peer-reviewed journals

WORK EXPERIENCE

PostDoctoral Fellow 2013 - present
Division of Biostatistics, Department of Population Health
New York University School of Medicine, New York, NY

- Design, create and maintain R packages to conduct shrinkage lasso model selection procedures
- Conduct secondary analysis of longitudinal trait in Genome Wide Association Studies (GWAS): use the linear mixed-effects model to characterize the relationship between longitudinal trait and genetic variants to explore population heterogeneity in longitudinal trajectories related to genetic variation; use the generalized estimating equations (GEE) approach to verify findings from the linear mixed-effects model against model misspecification
- Write R packages to perform the association analysis based on the linear mixed model with the weighted likelihood method, retrospective likelihood method and adaptively weighted method
- Implement applications on building and evaluating cancer risk prediction models and survival models: use Kaplan-Meier estimator to examine the survival rate for different cohort groups and build Cox-proportion model to select the risk factors for ovarian cancer survival
- Work on methodology developments in survival analysis and high-dimensional data analysis: by considering the group structure for effects across studies and employing the block coordinate gradient descent algorithm, develop adaptive L1/Lq penalty regularized partial likelihood approaches to handle heterogeneity in pooled studies

Visiting Assistant Professor 2010 - 2013
Department of Mathematics
University of Oklahoma, Norman, OK

- Performed clustering and classification using total variation segmentation, path variation segmentation and viscous fluid dynamics image registration
- Examined and compared different optimization algorithms and iterative methods(e.g. Newton's, quasi-Newton, and nonlinear conjugate gradient methods) to find that with proper preconditioning and line search algorithm, NLCG could be more suitable for optimization in large sparse systems
- Implemented constrained total variation image denoising algorithm in MATLAB on microarray data

Summer Intern 2007
Animal Health Division
Eli Lilly and Company, Indianapolis, IN

- Designed an ImageJ plug-in in Java to perform both 2D and 3D magnetic resonance image (MRI) registration with intensity difference as the distance measure
- Collaborated with colleagues in a team to test and debug the program

Long Term Visitor 2005 - 2006
Institute for Mathematics and its Applications (IMA), Minneapolis, MN

- Designed a graphical user interface(GUI) in MATLAB to segment the mouse fat images
- Implemented mathematical algorithms in MATLAB to visualize 3D structure of the circumstellar dust distribution around the star from large-scale datasets of images

EDUCATION

Doctor of Philosophy, Mathematics (GPA: 4.00/4.00) 2010
University of Connecticut, Storrs, CT

Master of Science, Mathematics (GPA: 4.00/4.00) 2010
University of Connecticut, Storrs, CT

Master of Science, Applied Mathematics 2004
Fudan University, Shanghai, China

Bachelor of Science, Mathematics, with honors 2001
Fudan University, Shanghai, China

COMPUTER SKILLS

- 10+ years of experience in MATLAB coding on a daily basis for mathematical/statistical model development, optimization, and data mining
- Proficient in R and SAS for data management and methodology development; have experience on developing R package
- Familiar with Java and C/C++; have experience on designing Java ImageJ plug-in

INVITED TALKS

Topic-Contributed Session: *Impact of Statistics on Imaging Studies in Drug Development*, **Joint Statistical Meetings (JSM)**, Boston, MA, 2014

PUBLICATIONS

- **X. Huang**, *Nonrigid Image Registration: Image registration using fluid dynamics and mutual information*, Scholar's Press, Germany, 2014
- **X. Huang**, *Nonrigid image registration problem using fluid dynamics and mutual information*, Journal of Biometrics & Biostatistics, 5: 212, 2014
- **X. Huang**, *Nonrigid image registration problem using fluid dynamics and mutual information*, Ph.D. thesis, 2010.
- T. Jones, R. Humphreys, L. Helton, C. Gui and **X. Huang**, *The 3D morphology of VY Canis Majoris. II: Polarimetry and the line-of-sight distribution of the ejecta*, Astronomical Journal, 133:2730-2736, June 2007
- **X. Huang**, *The Comparison of Optimization Techniques for 2D Elliptic Inverse Problem*, Operations Research Transactions, Vol.9 No.4, December 2005

HONORS AND AWARDS

PreDoctoral Fellowship, 2006
Summer Fellowship, 2005
Outstanding Graduate, 2001
The People's Scholarship, 1998-2001