

# JACOB M. MARONGE

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## RESEARCH INTERESTS

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Experimental design, statistical computing, neuroimaging, genomics, longitudinal studies

## EDUCATION

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**University of Wisconsin-Madison**

August 2016 - Present

PhD, Statistics

**Louisiana State University Health Sciences Center**

May 2016

MS, Biostatistics

*Thesis:* “Optimal Designs for Wavelet Regression Models”

*Advisor:* Zhide Fang

**University of Wisconsin-Milwaukee**

May 2014

BS, Physics

## PROFESSIONAL EXPERIENCE

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**University of Wisconsin-Madison**

August 2016 - Present

*NIH Predoctoral Trainee in Biostatistics, Program Director: Paul J. Rathouz*

*Madison, WI*

- Grant number: T32HL083806-10

- Performed semester-long rotations:

**Summer 2017:** Worked with Paul J. Rathouz and Katie Hustad on a longitudinal study focusing on expressive language development of children diagnosed with Cerebral Palsy.

**Spring 2017:** Worked with Michael Newton on a Empirical Bayes Method to compare covariance matrices across multiple conditions.

**Fall 2016:** Worked with Christina Kendzierski on analysis of single cell mRNA sequencing experiments.

**Johns Hopkins University, Bloomberg School of Public Health**

Summer 2016

*Summer Intern, Advisor: Ciprian M. Crainiceanu*

*Baltimore, MD*

- Worked with the Statistical Methods and Applications for Research in Technology (SMART) Research Group.
- Addressed issues in segmentation of stroke ischemia patients by implementing a localized neighborhood principal components analysis approach.
- Participated in the France Life Imaging-Information Analysis and Management (FLI-IAM) Multiple Sclerosis Lesion Segmentation Challenge with John Muschelli, Elizabeth Sweeney, and Russell Shinohara. We implemented a random forest technique in the challenge.

## PUBLICATIONS

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### *Peer-Reviewed:*

**Maronge JM**, Zhai Y, Weins DP, Fang Z. *Optimal designs for wavelet regression models*. The Journal of Statistical Planning and Inference. 184, 2017.

Tudorascu D, Karim H, **Maronge JM**, Alhilali L, Muschelli J, Crainiceanu C. *Reproducibility and Bias in Healthy Brain Segmentation: Comparison of Two Popular Neuroimaging Platforms*. Frontiers of Neuroscience. 10, 2016.

### *Manuscripts in progress:*

**Maronge JM**, Muschelli J, Crainiceanu C. *Global PCA decomposition of local neighborhood moments with applications to MRI*. In progress.

## PRESENTATIONS

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### *Talks:*

**Maronge JM**. *Empirical Bayes Analysis of Covariance* University of Wisconsin Department of Biostatistics and Medical Informatics Student Seminar, Madison, WI, May 5, 2017.

**Maronge JM**. *Single Cell RNA Sequencing: Analysis and Applications* University of Wisconsin Department of Biostatistics and Medical Informatics Student Seminar, Madison, WI, December 16, 2016.

### *Posters:*

**Maronge JM**, Fang Z. *Optimal Designs for Wavelet Regression Models*. Louisiana State University Health Sciences Center School of Public Health Delta Omega Research Day, New Orleans, LA, April 20, 2016.

**Maronge JM**, Fang Z. *Optimal Designs for Wavelet Regression Models*. Louisiana State University Health Sciences Center School of Graduate Studies Research Day, New Orleans, LA, November 6, 2015.

## PROFESSIONAL MEMBERSHIPS

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<b>American Statistical Association</b>	April 2015 - Present
<b>Delta Omega Honorary Society for Public Health</b>	May 2016 - Present

## COMPUTING SKILLS

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<b>Languages:</b>	R, SAS, MATLAB, Virtual Basic, Mathematica
<b>Markup:</b>	L <sup>A</sup> T <sub>E</sub> X, Rmarkdown, Microsoft Office

## SOFTWARE

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**medals:** R package to implement Memory Efficient Decomposition for Analysis of Local neighborhood moments for Segmentation (MEDALS). Available on GitHub.