**Alessandra Valcarcel**

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University of Pennsylvania

Philadelphia, PA, 19104

**Education**

**University of Pennsylvania**, Philadelphia, PA **May 2020** (anticipated)

**Perelman School of Medicine**

**PhD Candidate, *Biostatistics***

Dissertation Advisor: Dr. Russell Shinohara

**University of Pennsylvania**, Philadelphia, PA **May 2017**

**Perelman School of Medicine**

**M.S. *Biostatistics***

**University of Connecticut**, Storrs, CT **May 2015**

Cumulative GPA: 3.784/4.00

**B.A. *Biology and Statistics (Honors Scholar and Magna Cum Laude)***

**Universidad de Granada,** Granada, Spain **Fall 2013** (Study Abroad)

**RESEARCH EXPERIENCE**

***Research Assistant,*** *(September 2016-Present)*

University of Pennsylvania DBEI

*Principal Investigator*: Dr. Russell Shinohara

* Exploring methods in automated white matter lesion detection in multiple sclerosis
* Developing software packages for implementation of novel algorithms in R
* Participate weekly in PennSIVE group research meetings

***Lab Rotation,*** *(June 2016 – January 2016)*

University of Pennsylvania DBEI

*Principal Investigator*: Dr. Haochang Shou

* Assessed the activation of varying regions of interest in fMRI data to determine the pain network for those on placebo versus pain management medications

***Lab Rotation,*** *(January 2016-June 2016)*

University of Pennsylvania DBEI

*Principal Investigator*: Dr. Russell Shinohara

* Evaluated whether the correlation structure across images of the same location, which is known to differ across tissue types, is informative for detecting lesions with increased accuracy

***Lab Rotation*,** *(September 2015-January 2016)*

University of Pennsylvania DBEI

*Principal Investigator:* Dr. Andrea Troxel

* Conducted a multi-level simulation study to evaluate effect size and power under opt-in and opt-out consent approaches for behavioral trials
* Participated in weekly meetings for the Empower behavioral trial aimed at helping cardiac heart failure patients stay healthy after they are discharged from the hospital.

***Research Investigator,*** *(June 2014-May 2015)*

Dordt College, Research Internship in Statistical Genetics  
*Principal Investigator*: Dr. Nathan Tintle

* Collaborated with a team of students and faculty on NIH and NSF funded projects in post-hoc rare variant association testing after gene-based tests of association

***Research Assistant,*** *(January 2014-May 2015)*

University of Connecticut, Department of Statistics

*Principal Investigator*: Dr. Ofer Harel

* Independently examined the methods of propensity scores and the effects of missing data on propensity score analysis
* Applied the various methods of propensity score analysis on HIV data collected in South Africa on an Intervention Prevention Program

***Research Assistant,*** *(January 2013-September 2013),*University of Connecticut, Center for Health, Intervention, and Prevention  
*Principal Investigator*: Dr. Tania Huedo-Medina

* Conducted analyses exploring the relationship between exercise intervention on various cancer patients and the effects on anxiety and depression
* Served as a short-term statistical consultant in areas such as study design and data analysis for the Department of Allied Health students and faculty

***Research Investigator*,** *(Spring 2013),*University of Connecticut, Department of Allied Health

*Principal Investigator*: Dr. Tania Huedo-Medina

* Collaborated with a team of four from various academic backgrounds to conduct research exploring the factors related to childhood anxiety and obesity

**PUBLICATIONS**

**Valcarcel, A. M.**, Linn, K. A., Vandekar, S. N., Satterthwaite, T. D., Muschelli, J., Calabresi, P. A., Pham, D. L., Martin, M. L. and Shinohara, R. T. (2018), MIMoSA: An Automated Method for Intermodal Segmentation Analysis of Multiple Sclerosis Brain Lesions. Journal of Neuroimaging. doi:10.1111/jon.12506.

Grinde, K. E., Arbet, J., Green, A., O’Connell, M., **Valcarcel, A.M.**, Westra, J., & Tintle, N. (2017). Illustrating, Quantifying, and Correcting for Bias in Post-hoc Analysis of Gene-Based Rare Variant Tests of Association. *Frontiers in Genetics*, *8*, 117. http://doi.org/10.3389/fgene.2017.00117.

**Valcarcel, A.M.**, Grinde, K., Cook, K., Green, A., & Tintle, N. (2016). A multistep approach to single nucleotide polymorphism–set analysis: an evaluation of power and type I error of gene-based tests of association after pathway-based association tests. *BMC Proceedings*, *10*(Suppl 7), 349–355. http://doi.org/10.1186/s12919-016-0055-4.

Green, A., Cook, K., Grinde, K., **Valcarcel, A.**, & Tintle, N. (2016). A general method for combining different family-based rare-variant tests of association to improve power and robustness of a wide range of genetic architectures. *BMC Proceedings*, *10*(Suppl 7), 165–170. http://doi.org/10.1186/s12919-016-0024-y.

**MANUSCRIPTS IN PROGRESS**

**Valcarcel, A.**, Linn, K., Khalid, F., Vandekar, S., Tauhid, S., Satterthwaite, T., Muschelli, J., Bakshi, R., & Shinohara, R. (2018) A Dual Modeling Approach to Automatic Segmentation of Cerebral T2 Hyperintensities and T1 Black Holes in Multiple Sclerosis. *Submit to NeuroImage: Clinical*.

**Valcarcel, A.**, & Troxel, A., (2018). An evaluation of treatment effect in opt-in versus opt-out consent frameworks under a mixture of patient motivation levels.  *In progress*.

**ORAL PRESENTATIONS**

“MIMoSA: A Method for Inter-Modal Segmentation Analysis of T2 Hyperintensities and T1 Black Holes in Multiple Sclerosis.” Statistical Methods in Imaging Conference; Philadelphia, PA; 2018.

“MIMoSA: A method for inter-modal segmentation analysis.” ENAR Spring Meeting; Washington D.C. March 2017. Joint Statistics Meetings; Baltimore, MD July 2017.

“An evaluation of treatment effect in opt-in versus opt-out consent frameworks under a mixture of patient motivation levels.” Joint Statistical Meetings; Chicago, Illinois; August 2017.

“Identifying and correcting for bias in post-hoc ranking strategies: an application to gene-based tests of association.” University of Michigan; Ann Arbor, Michigan; July 2014.

**POSTER PRESENTATIONS**

“MIMoSA: A Method for Inter-Modal Segmentation Analysis of T2 Hyperintensities and T1 Black Holes in Multiple Sclerosis.” European Committee for Treatment and Research in Multiple Sclerosis; Paris, France; October 2017. Americas Committee for Treatment and Research in Multiple Sclerosis; San Diego, California; February 2018. ENAR Spring Meeting; Atlanta, GA; March 2018. Statistical Methods in Imaging Conference; Philadelphia, PA; 2018.

“Estimating causal effects in incomplete observational studies using multiple imputation and propensity score analysis: A simulation study.” University of Connecticut Frontiers in Undergraduate Research; Storrs, Connecticut; April 2015.

“A multi-step approach to SNP-set analysis: An evaluation of power and type I error of gene-based tests of association after pathway-based tests.” Genetic Analysis Workshop 19; Vienna, Austria; August 2014.

**SOFTWARE**

**Valcarcel, A.**, & Shinohara, R.T., “mimosa: A Method for Inter-Modal Segmentation Analysis” R package available on Neuroconductor and GitHub Nov 2017.

**Valcarcel, A.**,“GoT: Scrape Game of Thrones Data” R package available on GitHub May 2018.

**ACADEMIC HONORS AND AWARDS**

* Best Student Abstract Award at Statistical Methods in Imaging Conference, Philadelphia, PA (*June 2018*)
* Student travel award to attend and present research at Americas Committee for Treatment and Research in Multiple Sclerosis (ACTRIMS), San Diego, California (*February 2018*)
* Student travel award to attend and present research at the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Paris, France, (*October 2017*)
* Educational Fellowship Recipient, University of Pennsylvania (*2015- 2017*)
* Undergraduate Statistics Project Competition (USPROC) Honorable Mention in the USRESP competition, Theoretical category, American Statistical Association (ASA) and The Consortium For The Advancement of Undergraduate Statistics Education (CAUSE), (*August 2015*)
* Honors Scholar in Statistics, University of Connecticut, (*May 2015*)
* Student travel award to attend and present research at Genetic Analysis Workshop 19, Vienna, Austria, *(August 2014)*

**TEACHING EXPERIENCE**

***Teaching Assistant****, (August 2016-January 2017, August 2017-January 2018)*

University of Pennsylvania, Introduction to Statistics for Health Policy: HPR 604

* Responsible for holding weekly office hours and participated in grading homework and exams for graduate level introductory statistics course
* Created and lectured bi-weekly lab lectures and assignments in Stata

***Library Tutor in Mathematics Center***, *(2014-2015)*  
University of Connecticut

***Substitute Teacher*,** *(2013-2015)*Hopewell Valley Regional School District

**SERVICE AND LEADERSHIP**

***Council for Emerging and New Statisticians (CENS)****, (May 2017-Present)*

ENAR Regional Advisory Board

* Advise RAB on how ENAR can better serve graduate students and recent graduates
* Organize a proposal for an invited session at ENAR Spring 2018 Meeting as well as plan activities for ENAR members throughout the year and at the meeting

***Admissions Student Representative***, *(January 2016-Present)*

University of Pennsylvania DBEI

* Organize and chair student activities and information sessions between current and interviewees

***Recruitment Committee****, (August 2016-Present)*

University of Pennsylvania DBEI

* Collaborate with faculty regarding different recruitment strategies for potential applicants
* Present recruitment talk to various groups around Penn as well as nearby universities

***BGSA Student Representative****, (August 2016-Present)*

University of Pennsylvania Biomedical Graduate Student Association

* Participate in monthly meetings to discuss college wide activities and issues including unionization of graduate students and budgeting
* Organize monthly student activities to foster relationships among biostatistics and epidemiology graduate students

***Alpha Beta Epsilon****, (2011-2015)*

University of Connecticut

* ***Parliamentarian***: Expert in rules of order, procedures, and conduct at meetings and assemblies to maintain the pillars of academics, service and brotherhood on which the fraternity was founded
* ***Pledging Officer****:* Introduced and educated new pledging members on community service and academic involvement of the fraternity
* ***Rush Chair****:* Facilitated, organized, and promoted activities to recruit and incorporate members to the fraternity

***Orientation Leader,*** *(August 2012, August 2013)*,University of Connecticut, Husky Week Of Welcome

* Led orientation workshops for freshman and transfer students about study strategies and becoming involved around campus

***Participant/Dancer and Morale Captain***, *(December 2012-March 2015)*

Connecticut Children’s Medical Center HuskyTHON Dance Marathon

* Responsible for executing various fundraisers in year round events such as canning, bake sales, solicit donations from local businesses

**PROFESSIONAL AFFILIATIONS**

* Eastern North American Region of the International Biometric Society
* American Statistical Association

**COMPUTATIONAL EXPERTISE**

* **Expertise**: R
* **Working Knowledge**: SAS, bash scripting, MATLAB, Stata
* **Applications**: LaTeX, Microsoft Office, knitr, RMarkdown, StatWeave, GitHub