

Iain Carmichael

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EDUCATION

The University of North Carolina at Chapel Hill, Chapel Hill, NC (expected) May 2019
Ph.D. Statistics
Department of Statistics and Operations Research
Thesis: *Topics in the analysis of non-standard data including networks, text and images*
Advisors: Shankar Bhamidi, J.S. Marron

Cornell University, Ithaca, NY May 2014
B.A. Mathematics, Physics

Budapest Semesters in Mathematics, Budapest, Hungary Spring 2013
Semester abroad

PUBLICATIONS

IN PREPARATION

1. **Carmichael, I.**, Couture, H., Niethammer M., Perou C., Marron J.S. (2018). Joint analysis of H&E stained images and genetic covariates using deep learning and JIVE.
2. **Carmichael, I.**, Jung, M., Marron, J.S. (2018). Python, R and Matlab packages for angle-based joint and individual variation explained.

UNDER REVIEW

3. Banerjee, S., Bhamidi, S., **Carmichael, I.** (2018). Fluctuation bounds for continuous time branching processes and nonparametric change point detection in growing networks. (*Under review*)
4. **Carmichael, I.**, Marron, J.S. (2017). Geometric insights into support vector machine behavior using the KKT conditions. (*Under review*)

PUBLISHED

5. **Carmichael, I.**, Williams, JP. (2018). An exposition of the false confidence theorem. *Stat*, 7(1), e201.
6. **Carmichael, I.**, Marron J.S. (2018). Data science vs. statistics: two cultures?. *Japanese Journal of Statistics and Data Science*, 1(1), 117-138.
7. **Carmichael, I.**, Wudel, J., Kim, M., Jushchuk, J. (2017). Examining the evolution of legal precedent through citation network analysis. *NCL Rev.* 96 (2017): 227.

PRESENTATIONS

“Angle-based Joint and Individual Variation Explained with Applications to Image and Genetic Data,” *University of Illinois Urbana-Champaign, Department of Statistics*, Urbana, IL, February, 2019.

“Angle-based Joint and Individual Variation Explained with Applications to Image and Genetic Data,” *University of Wisconsin–Madison, Department of Statistics*, Madison, WI, January, 2019.

“Angle-based Joint and Individual Variation Explained with Applications to Image and Genetic Data,” *Harvard University, Department of Biostatistics*, Boston, MA, January, 2019.

“Angle-based Joint and Individual Variation Explained with Applications to Image and Genetic Data,” *FocuStat Combo Kitchen*, Oslo, Norway, November, 2018.

“Angle-based joint and individual variation explained,” *Joint PI Meeting: NSF BIGDATA and Big Data Hubs & Spokes*, Alexandria, VA, June, 2018. (poster) https://idc9.github.io/assets/ajive_carmichael_nsf_bigdata2018_poster.pdf

“Data science and the undergraduate curriculum,” *UNC STOR Department Colloquium*, Chapel Hill, NC, September 2017. https://idc9.github.io/assets/data_science_stor_colloquium.pdf

“Open data, networks and the law,” *PyData Carolinas*, Raleigh, NC, October, 2016.

PROFESSIONAL EXPERIENCE

Consultant, Reese News Lab, *Chapel Hill, NC* Spring - Fall 2017

Research Scientist, Gamalon Machine Intelligence, *Cambridge, MA* May - August 2016

TEACHING

Instructor, STOR-BIOS Linear Algebra Summer Boot Camp, *UNC, Chapel Hill, NC* Summer 2017

Instructor, STOR 390: Introduction to Data Science, *UNC, Chapel Hill, NC* Spring 2017

- Created and taught the first data science course for UNC’s undergraduate statistics major.
<https://idc9.github.io/stor390/>

Graduate Research Consultant, JOMC 390: Data Driven Journalism, *UNC, Chapel Hill, NC* Spring 2016

Teaching Assistant, *UNC, Chapel Hill, NC*

- STOR 634: Measure Theory Fall 2015
- STOR 113: Decision Models for Business and Economics Fall 2014 - Spring 2015

Undergraduate student mentorship, *UNC, Chapel Hill, NC*

- Kate Cho (statistics) Spring 2016
- Michael Kim (statistics) Spring 2016 - Spring 2017
- James Jushchuk (computer science) Spring 2016 - Spring 2018
- Scott Garcia (statistics) Fall 2016
- Ethan Koch (statistics) Spring 2017 - Spring 2018
- Charles Tang (computer Science) Spring 2019

AWARDS

The Walter Deemer Excellence in Teaching Award, *UNC, Chapel Hill, NC* December 2018

Dean’s Graduate Fellow in the College of Arts and Sciences, *UNC, Chapel Hill, NC* 2018-2019

Grant from Data@Carolina (with Shankar Bhamidi), *UNC, Chapel Hill, NC* Fall 2016

Regional Datathon winner (team of 4 winning \$20,000 data science competition sponsored by Citadel), <i>Duke University, Durham, NC</i>	April 2017
5th place in international Data Open Championship sponsored by Citadel, <i>Manhattan, NY</i>	November 2017

PROFESSIONAL SERVICE

Referee for: IEEE Transactions on Neural Networks and Learning Systems, Journal of Applied Probability	
UNC middle/high school science exposition, <i>UNC, Chapel Hill, NC</i> https://github.com/idc9/UNC_science_expo_2018	Spring 2018
Tutorials on R, Python, data science, optimization and natural language processing can be found on my github page (github.com/idc9)	2015 - present
Member of Evidence, Analysis, Interpretation, and Critique task force for UNC's Curriculum Development Committee, <i>UNC, Chapel Hill, NC</i>	Spring 2017
Coach of UNC's undergraduate team competing in DataFest, <i>Duke University, Durham, NC</i>	2016 - 2017