

# AMELIA A. MCNAMARA

215 Burton Hall • Smith College • Northampton MA, 01063 • (413) 585-3851  
amcnamara@smith.edu • www.science.smith.edu/~amcnamara • @AmeliaMN

## RESEARCH INTERESTS

---

Statistical computing, statistics education, data visualization, reproducible research, spatial statistics

## EDUCATION

---

**Ph.D., Statistics** 2015  
**University of California - Los Angeles** Los Angeles, CA  
Dissertation: Bridging the Gap Between Tools for Learning and for Doing Statistics  
Committee: Robert Gould and Fredrick Paik Schoenberg (co-chairs, statistics), Mark Handcock (statistics), Todd Millstein (computer science), Alan Kay (computer science).

**B.A., Mathematics and English** 2010  
**Macalester College** St. Paul, MN

## ACADEMIC APPOINTMENTS

---

**Visiting Assistant Professor** 2015-2019  
Smith College Program in Statistical and Data Science Northampton, MA  
*MassMutual Faculty Fellow*

## AWARDS

---

**Teaching Integrity in Empirical Research Faculty Fellow**, Haverford College 2015-2016  
**Collegium of University Teaching Fellows**, University of California, Los Angeles 2014-2015  
**Dissertation Year Fellowship**, University of California, Los Angeles 2014-2015  
**Graduate Research Fellowship Program**, National Science Foundation 2012  
**Chancellor's Prize Summer Fellowship**, University of California, Los Angeles 2011-2012  
**Konhauser Prize for Mathematical Achievement**, Macalester College 2010

## RESEARCH AND CONSULTING

---

**The Concord Consortium**, Emeryville, CA September 2016-March 2017  
*Consultant*

Working with William Finzer and the Common Online Data Analysis Platform (CODAP) on integrating 'Data Science Moves' into CODAP.

**Viewpoints Research Institute**, Los Angeles, CA September 2016-January 2017  
*Consultant*

Continuing collaboration with Aran Lunzer to develop interactive essays related to the impacts of data aggregation in 1- and 2-D.

**Smith College**, Northampton, MA 2015-present  
*Visiting Assistant Professor*

At Smith College, my research program is focused on statistics education, statistical computing, data visualization, and spatial statistics. In Spring 2016, I worked with three post-baccalaureate students as part of the MTH 301 independent research seminar. We focused on Methods to Address the Change of Support and Modifiable Areal Unit Problems.

**Viewpoints Research Institute**, Los Angeles, CA

2013-2015

*Graduate Intern*

The Viewpoints Research Group is a research group with a variety of interests including the future of programming, internet-scale computing, and programming language design. I collaborated with other researchers on projects to improve statistical computing tools for novices (those with no statistics or programming experience). Examples include **LivelyR** with Aran Lunzer and **locatr** with Ted Kaehler. Director: Alan Kay.

**Mobilize Project**, Los Angeles, CA

2011-2014

*Graduate Student Researcher*

The Mobilize project brings data analysis and statistics to life by allowing high school students to collect information about the world around them using mobile phones, then analyze the data and do something with it. As a graduate student researcher, I developed curriculum to be deployed in LAUSD public high schools, including the innovative Introduction to Data Science course. Over hundreds of hours of professional development, I trained teachers on basic statistical concepts, use of inquiry in teaching, and basic statistical software. Principal Investigator: Rob Gould.

## PEER-REVIEWED PUBLICATIONS

---

**McNamara, A. Key attributes of a modern statistical computing tool.** (submitted)

**McNamara, A. On the state of computing in statistics education: Tools for learning and for doing.** (submitted)

**McNamara, A.**, and Horton, N. J. **Wrangling categorical data in R.** *PeerJ Collection* and special issue of *The American Statistician*. (in revision)

**McNamara, A. Considering the gap between learning and doing statistics.** *International Handbook of Research in Statistics Education*. In chapter 15, The Future of Research in Statistics Education. (in revision)

**McNamara, A. Community engagement and subgroup meta-knowledge: Some factors in the soul of a community.** *Computational Statistics*. (in press)

Catllá, A.J., **McNamara, A.** and Topaz, C. M. **Instabilities and patterns in coupled reaction-diffusion layers.** *Physical Review E*, Vol. 85, Issue 2. (2012).

## OTHER WRITING

---

**McNamara, A. Barriers and opportunities for nurturing statistical thinking before college** *CHANCE*, Vol. 28, Issue 4. (2015).

**McNamara, A.** and Hansen, M. **Teaching data science to teenagers.** *Proceedings of the 9th International Conference on Teaching Statistics*. (2014).

**McNamara, A. Dynamic documents with R and knitr** (book review). *Journal of Statistical Software*, Vol. 56, Book Review 2. (2014).

## TEACHING

---

**Smith College** Program in Statistical and Data Sciences

SDS/MTH 220: **Introduction to Statistics and Probability** (lecture) Fall 2015, Spring 2016

SDS/MTH 220: **Introduction to Statistics and Probability** (lab) Fall 2015, Spring 2016

SDS/MTH 291: **Multiple Regression** Spring 2016, Fall 2016

**MassMutual** Data Science Development Program

Summer 2016

Week-long seminar on data visualization

**University of California, Los Angeles** Statistics Department 2013-2015  
 STAT 98T: **Data Visualization** (Instructor of record, Collegium of University Teaching Fellows)  
 STAT 101A: **Introduction to Data Analysis and Regression** (Teaching fellow)  
 STAT 102B: **Introduction to Computation and Optimization** (Teaching fellow)  
 STAT 101C: **Introduction to Regression and Data Mining** (Teaching fellow)

**Mobilize Project, Los Angeles** Professional Development Program 2011-2014  
 Professional Development: **Exploring Computer Science** (Leader)  
 Professional Development: **Math and Science** (Leader)  
 Professional Development: **Introduction to Data Science** (Leader)

## SHORT COURSES AND WORKSHOPS

---

**Data Science for Statisticians** March 2017  
 ENAR, International Biometric Society *Washington, DC*

**Introduction to R** (with C. Jones) March 2016  
 NICAR, Investigative Reporters & Editors Conference *Denver, CO*

## INVITED TALKS

---

**Data Science** (tentative title) March 2017  
 St. Olaf College *Northfield, MN*

**Bridging the Gap Between Tools for Learning and for Doing Statistics** November 2016  
 University of Minnesota *Minneapolis, MN*

**Bridging the Gap Between Tools for Learning and for Doing Statistics** March 2016  
 University of Massachusetts - Amherst *Amherst, MA*

**Statistical Programming— Past, Present, and Future** December 2014  
 California State University, Fullerton *Fullerton, CA*

## CONFERENCE PRESENTATIONS

---

**The Incredible Importance of Variability** November 2016  
 THINK Conference *Bay Area, CA*

**Pushing the Boundary Between Tools for Learning and for Doing Statistics** August 2016  
 Joint Statistical Meetings *Chicago, IL*

**Graphics Software: Favorites and Best Practices** (roundtable) August 2016  
 Joint Statistical Meetings *Chicago, IL*

**The Importance of Parameter Manipulation for Statistics** July 2016  
 Society for Industrial and Applied Mathematics Annual Meeting *Boston, MA*

**Integrated R Labs for High School Students** June 2016  
 useR! The R User Conference *Stanford, CA*

**The Gap Between Tools for Learning and for Doing Statistics** May 2016  
 Electronic Conference on Teaching Statistics *electronic*

<b>Do you know Nothing when you see it?</b> OpenVisConf	April 2016 <i>Boston, MA</i>
<b>Implications for Curriculum</b> (panelist) Alliance to Advance Liberal Arts Colleges (AALAC) Big Data Workshop	January 2016 <i>Wellesley, MA</i>
<b>Using Data Visualization to Find Patterns in Multidimensional Data</b> Big Data Day LA	June 2015 <i>Los Angeles, CA</i>
<b>Teaching Data Science to Teenagers</b> (invited talk, with M. Hansen) International Conference on Teaching Statistics	July 2014 <i>Flagstaff, AZ</i>
<b>Teaching R to High School Students</b> (with J. Molyneux) useR! The R User Conference	July 2014 <i>Los Angeles, CA</i>
<b>LivelyR: Making R Charts Livelier</b> (with A. Lunzer) useR! The R User Conference	July 2014 <i>Los Angeles, CA</i>
<b>heR Panel Discussion</b> (panelist) useR! The R User Conference	July 2014 <i>Los Angeles, CA</i>
<b>Mobilize Project</b> (with J. Margolis and L. Trusela) Math Science Partnership Learning Network Conference	January 2012 <i>Washington, DC</i>
<b>Model and Optimization of Organic Photovoltaic Cells</b> Joint Meeting of AMS and MAA	January 2010 <i>San Francisco, CA</i>

## POSTER PRESENTATIONS

---

<b>Pushing the Boundary Between Tools for Learning and for Doing Statistics</b> Joint Statistical Meetings	August 2016 <i>Chicago, IL</i>
<b>It Ain't Necessarily So: Checking Charts for Robustness</b> (with A. Lunzer) IEEE Vis Conference	November 2014 <i>Paris, France</i>
<b>Tools for Teaching Data Science</b> Women in Statistics Conference	May 2014 <i>Cary, NC</i>
<b>Data Visualization on the Soul of the Community</b> Joint Statistical Meetings	August 2013 <i>Montreal, QC</i>
<b>Model and Optimization of Organic Photovoltaic Cells</b> Joint Meeting of AMS and MAA, San Francisco, CA Undergraduate Research Symposium, University of Chicago Macalester College, St. Paul, MN Institute for Mathematics and its Applications, Minneapolis, MN	January 2010 November 2009 October 2009 July 2009

## ADDITIONAL CONFERENCES AND WORKSHOPS ATTENDED

---

<b>Youth, Learning and Data Science Summit</b> (invited participant) University of California, Berkeley	August 2016 <i>Berkeley, CA</i>
--	------------------------------------

**Teaching Integrity in Empirical Research Workshop** (faculty fellow)  
Haverford College

June 2016  
*Haverford, PA*

**rOpenSci hackathon** (invited participant)  
Open Science Hackathon

March 2014  
*San Francisco, CA*

## LOCAL CONTRIBUTIONS

---

### **What's Missing? Identifying the Gaps, Biases, and Omissions in Digital Data**

Guest lecture in IDP 160: Digital Effects, Smith College

*October 2016*

### **Futurisms, part II: Intersections: Digital Humanities, Interactive Media and Cultural Heritage** (faculty fellow)

Smith College Kahn Institute

*February 2016*

### **Futurisms, part I: The Ten Thousand Year Collection** (faculty fellow)

Smith College Kahn Institute

*December 2015*

### **Using Data Visualization to Find Patterns in Multidimensional Data**

Guest lecture in CS 342: Statistical Learning, Hampshire College

*November 2015*

### **Using Data Visualization to Find Patterns in Multidimensional Data**

Western Mass Data Science, Stats, and R Meetup, Amherst, MA

*November 2015*

### **Eyeo Highlights**

Datavis LA Meetup, Los Angeles, CA

*August 2014*

## SERVICE TO DEPARTMENT, PROFESSION, AND COLLEGE

---

### **Joint Statistical Meetings** Chicago, IL

2016

Session Chair

- Toward Better Communication of Information with Statistical Graphics – Contributed Papers
- Reproducibility in Statistics and Data Science – Invited Papers (substitute chair)

### **Smith College Statistical and Data Sciences Program Committee**

2015-present

Faculty member

- Assisted in developing the major in Statistical and Data Sciences (approved April 2016).
- Voted on departmental policy about honors theses, special studies, course waivers, and the like.
- Organized invited talk by Amanda Cox (long time member of the graphics team at The New York Times, now editor of The Upshot), attended by almost 200 people from the college and community.
- Organizing invited talk by Christine Zhang '09 (alumna and recipient of 2016 Mozilla Open News Fellowship, currently working for the LA Times).
- Managing Twitter presence @SmithCollegeSDS.

### **Five College DataFest**

2015-present

Co-organizer with Ben Baumer.

- Planned and executed a weekend-long data hackathon event for more than 100 undergraduate students from Smith, Mt Holyoke, Hampshire, Amherst, and UMass Amherst.
- Managed social media, including Wordpress website and Twitter presence @FiveCollegeStat.
- Recruited data science experts to serve as VIP visitors and judges.
- Solicited donations from corporations like Google and RStudio.
- Coordinated prizes and swag for students.

- University of California, Los Angeles DataFest** 2012-2015  
 Planning Member
- As a graduate student, assisted in planning and executing the 2012, 2013, and 2014 UCLA DataFests for undergraduates, attended by 100-200 undergraduate students from UCLA, the University of Southern California, Pomona College, California Polytechnic State University San Luis Obispo, and the University of California, Riverside.
  - Managed Twitter presence @UCLADataFest.
  - Served as on-the-ground-advisor for students at the event, discussing ideas and coding issues.
  - Assisted in coordinating donations and swag from corporations like GitHub, Google, Revolution Analytics, and RStudio.
- Los Angeles useR! Conference Organizing Committee** 2013-2014  
 Planning Member
- Assisted in planning and executing the 2014 international R user conference (700 attendees).
  - Recruited and coordinated 80 student volunteers.
  - Assisted with conference website before, during, and after the conference.
  - Promoted conference on social media, encouraged minority participation.
  - Supervised on-the-ground conference logistics, including registration, catering, and facilities services.
- UCLA Graduate Student Orientation Planning Committee** 2012-2013  
 Tour Coordinator
- Helped plan and execute the 2012 and 2013 UCLA grad student orientations, attended by 1,000+ incoming graduate students each year.
  - Discussed general orientation issues, such as panel topics and logistical concerns.
  - Organized and trained 15 volunteer tour guides to lead tours campus.
  - Prepared tour materials and checked routes for North Campus, South Campus, and General tours.
  - On the day of orientation, coordinated hourly tours and assigned tour guides to routes.
- Macalester College Admissions** 2013-present  
 Volunteer interviewer and college representative
- Performed alumni interviews of prospective students applying to Macalester in Southern California and Western Massachusetts
  - Represented Macalester at the 2015 Vistamar College Fair, answering questions about Macalester and the admissions process
- Southern California AP Statistics Poster Competition** 2014  
 Judge
- Judged entries to the 2014 Southern California AP Statistics Poster Competition
- UC Day in DC** May 2013  
 University of California, Los Angeles Delegate
- Represented UCLA and graduate student interests at the University of California's annual federal advocacy day in Washington, DC.
  - Met with congress members and their staff to discuss Federal funding for programs impacting grad students.
- UCLA Graduate Resource Center Oversight Committee** 2011-2012  
 Voting Member
- Assisted in developing a new strategic plan for UCLA's graduate resource center

**Ad-hoc referee**

2014-present

Journals:

- Journal of Statistical Software (JSS)
- Statistics Education Research Journal (SERJ)
- Technology Innovations in Statistics Education (TISE)
- The American Statistician (TAS)

**SKILLS**

---

**Languages** Expert: R,  $\text{\LaTeX}$ , HTML, Markdown  
 Intermediate: Spanish, Python, git, JavaScript, Matlab, Mathematica, ArcGIS

**Social Media** Twitter: **@AmeliaMN**, 4,800+ tweets, 2,200+ followers  
 Currently managing **@SmithCollegeSDS** , **@FiveCollegeStat**  
 Formerly managed **@UCLADataFest**, **@user2014\_UCLA**

**MEMBERSHIPS IN PROFESSIONAL SOCIETIES**

---

<b>American Statistical Association (ASA)</b>	2012-present
<b>Society for Industrial and Applied Mathematics (SIAM)</b>	2012-present
<b>Association for Women in Mathematics (AWM)</b>	2008-2010, 2014-present
<b>Institute of Electrical and Electronics Engineers (IEEE)</b>	2016-present
<b>WNAR: International Biometric Society (WNAR)</b>	2013-2014