Jessica Conrad

jconrad4@tulane.edu ● http://www.linkedin.com/in/jessieconrad

PROFESSIONAL SUMMARY

Mathematics, biostatistics, and public health professional who enjoys working on research teams to develop creative solutions, transforming how we analyze and view complex problems. Fluent in LaTex, Matlab, SAS, R, and SQL coding. Able to use deterministic and stochastic modeling to interpret real world problems on a simpler theoretical basis. Complimented by presentation and leadership experience.

EDUCATION

Tulane University, School of Public Health and Tropical Medicine   Expected May 2018
New Orleans, Louisiana
Master of Science in Public Health, Biostatistics   GPA: 3.97
Tulane University, School of Science and Engineering   December 2016
New Orleans, Louisiana
Bachelor of Science, Mathematics; Minor: Chemistry   GPA: 3.88
Tulane University, School of Public Health   December 2016
New Orleans, Louisiana
Bachelor of Science, Public Health   GPA: 3.88

ACADEMIC ACCOMPLISHMENTS

Tulane 34 Award: Recognizes achievements in leadership, service, & academic excellence for 34 total graduates from all 10 Tulane schools
Summa Cum Laude: All semesters as student at Tulane University (Fall 2013 to Fall 2017)

RESEARCH

Graduate Research Assistant - SEES Fellows   May 2017 - Present
New Mexico Consortium and Los Alamos National Laboratory, New Mexico
- Processed and analyzed raw data from climate, satellite imagery, Google Health Trends, Twitter, demographic information, and reported Dengue fever case counts in Brazil
- Generated ARMA prediction models in R for future dengue incidence from provided data streams
- Created database to store raw data using MySQL for easier data access
- Culminated in poster talk, "Using Satellite Imagery and Internet Data for Dengue Surveillance in Brazil"
- Received funding through SEES Fellows: Modeling for sustainability in a changing environment: emerging infectious diseases

Uncertainty Quantification   January 2018 – Present
Tulane University, Louisiana
- Investigated model fitness process including model selection, fitness statistics, parameter identifiability (local, extended, and global), uncertainty quantification of parameter estimations, and cross validation
- Culminating in final paper and presentation, generated as an unofficial technical report looking at the specific example of Susceptible-Infected-Susceptible (SIS) models

Research Assistant - Honors Thesis   January- December 2016
Tulane University, Louisiana
- Researched theoretical mitigation strategies for Chagas disease in the USA using deterministic Susceptible-Infected-Removed (SIR) modeling techniques
- Programmed Matlab to research host-vector competing infection model; generated comprehensive project technical report in LaTex
- Presented a final paper and poster, "Mitigating Chagas Disease: Fighting an Infection with an Infection"
- Conducted field research collecting data on Chagas prevalence in the New Orleans area

Survey of Optimization Algorithms   January - June 2016
- Explored a variety of parameter identifiability algorithms currently available in the literature, including practical and structural identifiability issues
- Culminated in final paper and presentation, generated as an unofficial technical report on parameter identifiability algorithm based on the use of the Hessian

Mathematical and Theoretical Biology Institute (MTBI) Summer Research   June - August 2015
Arizona State University, Arizona
- Conducted research on incentivizing reform programs in the Louisiana prison system
- Created a compartmental model and analysis using Matlab, Maple, and Mathematica programming
- Culminated in paper, presentation, and poster talk at SACNAS titled "Minimizing recidivism by optimizing profit: a theoretical case study of incentivized reform in a Louisiana prison"

Research Assistant - Mathematical Modeling of Biological Systems   September 2014 - May 2015
Tulane University, Louisiana
- Published a paper, "Modeling the Impact of Behavior Change on the Spread of Ebola"
- Constructed epidemiological models using SIR techniques to summarize the impact of behavior change on Ebola incidence rates during the 2014 West Africa epidemic; compared to stochastic model
- Developed analytical and numerical simulations to solve linear and nonlinear differential equations
- Received a Louisiana Supervised Undergraduate Research Experience grant to fund research project

Smoke Free Ban Needs Assessment Coordinator   September - December 2014
Tulane University, Louisiana
- Conducted needs assessment of New Orleans bar owners for Louisiana Public Health Institute (LPHI)
- Produced a literature review on the financial impact of smoking bans on bars and clubs
- Reported results to LPHI to be used in the development of government policy, the Smoke Free Ban

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PUBLICATION
Conrad, J. R., Xue, L., Dewar, J., & Hyman, J. M. "Modeling the Impact of Behavior Change on the Spread of Ebola." Mathematical and Statistical Modeling for Emerging and Re-emerging Infectious Diseases. Springer, Cham, 2016. 5-23.

PRESENTATIONS
42nd SIAM Southeastern Atlantic Sectional Conference (March 2018, Chapel Hill, North Carolina)
- Poster presentation on "Using Satellite Imagery and Internet Data for Dengue Surveillance in Brazil"

2017 AGU Fall Meeting (December 2017, New Orleans, Louisiana)
- Poster presentation on "Using Satellite Imagery and Internet Data for Dengue Surveillance in Brazil"

2017 ASTMH Annual Meeting (December 2017, Baltimore, Maryland)
- Poster presentation on "Mitigating Chagas Disease: Fighting an Infection with an Infection"

2017 ICMA-IV (October 2017, Tucson, Arizona)
- Poster presentation on "Using Satellite Imagery and Internet Data for Dengue Surveillance in Brazil"

CNLS Summer Talk (August 2017, Los Alamos, New Mexico)
- Presented "Mitigating Chagas Disease: Fighting an Infection with an Infection"

Applied Mathematics Seminar (October 2016, Vassar College, New York)
- Upon invitation, presented my research on "Minimizing recidivism by optimizing profit"

Primer Congreso Internacional de Modelaje Matematico (February 2016, San Salvador, El Salvador)
- Inaugural presentation at the Simon A. Levin Mathematical, Computational, and Modeling Sciences Center on "Minimizing recidivism by optimizing profit"

Presentation for the Ministry of Education (February 2016, San Salvador, El Salvador)
- Invited for private presentation on "Minimizing recidivism by optimizing profit" in English and Spanish

2015 SACNAS National Conference (September 2015, Washington, D.C.)
- Poster presentation of research done at MTBI on "Minimizing recidivism by optimizing profit: a theoretical case study of incentivized reform in a Louisiana prison"

SSE Research Day (February 2015, Tulane University, Louisiana)
- Poster presentation of research on "Modeling the Impact of Behavior Change on the Spread of Ebola"

PROFESSIONAL & LEADERSHIP EXPERIENCE

Student Government Association Networking Subchair   September 2017 - Present
Tulane Univeristy, Louisiana
- Solely planned networking event with the aid of SGA for students of the Tulane School of Public Health and Tropical Medicine (SPHTM) for 150 guests with $6000 budget
- Organized hotel contract and space, contacted alumni and students, and managed the budget for the Preceptor Thank You and Networking event

Diversity Committee Member   September 2017 - Present
Tulane University, Louisiana
- Serving on graduate school diversity committee to improve student life

Graduate Teaching Assistant   January 2017 - Present
Tulane University, Louisiana
- Mentor and tutor 60 students per semester of undergraduate "The Cell, the Individual, and the Community" course
- Create and grade quizzes and homework assignments; Keep fundamental class records

Residential Advisor   January 2015 - May 2017
Tulane University, Louisiana
- Managed 70 residents, including conflict resolution, resource connections, and life advice
- Worked with a wide range of students from undergraduate sophomores to Masters students
- Organized programs to meet individual needs including community integration and mental health

President, Omicron Delta Kappa Tulane Circle   January - May 2017
Tulane University, Louisiana
- National leadership honor society for college students, faculty, staff, administrators, and alumni
- Organize and coordinate advisory board meetings with Tulane administrators

President, Rotaract at Tulane   January 2016 - January 2017
Tulane University, Louisiana
- Founding member of the service club, sponsored by Rotary International
- Organized volunteer events with over 30 organizations in the New Orleans area and abroad, including transportation, event details, and recruitment of volunteers for each event
- Successfully received $2000 grant funding for community outreach in Kisumu, Kenya, for a water well project

President, Academic Tutoring for Roots of Music   August 2014 - May 2015
Tulane University, Louisiana
- Provided academic tutoring assistance to elementary and middle school students
- Supervised and coordinated transportation of volunteers to and from the tutoring site 4 days a week
- Coordinated with the director of Roots of Music to create fun outdoor events for tutors and students

SKILLS
Languages: English (Native); Spanish (Beginner); Swahili (Beginner)
Programming: Matlab (Advanced); R (Advanced); SAS (Advanced); LaTex (Advanced); Excel, PowerPoint, and Word (Advanced); SQL (Intermediate)

PROFESSIONAL ASSOCIATIONS
- Eta Chapter of the Delta Omega National Honorary Society in Public Health
- Omicron Delta Kappa Honors Fraternity
- Rotary Club of New Orleans Riverbend
- Rotaract Club at Tulane (Sponsored by Rotary Club of New Orleans Riverbend)

- American Society of Tropical Medicine & Hygiene (ASTMH)
- Society of Advancing Chicanos/Hispanics & Native Americans in Science (SACNAS)