Jessica Conrad

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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 *Summa Cum Laude*, Mathematics; Minor: Chemistry — GPA: 3.88

Tulane University, School of Public Health — December 2016
New Orleans, Louisiana
Bachelor of Science *Summa Cum Laude*, 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 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

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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

- Omicron Delta Kappa Honors Fraternity
- 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)

REFERENCES

Dr. Carrie Manore
Position: Scientist
Company: Los Alamos National Laboratory
Phone: (541) 207-7969
Email: cmanore@lanl.edu
Relationship: Dr. Manore is my PI and group leader for my current research project, “Using Satellite Imagery and Internet Data for Dengue Surveillance in Brazil.”

Dr. James Mac Hyman
Position: Professor of Mathematics
Company: Tulane University, Department of Mathematics
Phone: (504) 862-3433
Email: mhyman@tulane.edu
Relationship: Dr. Hyman is my mathematics advisor and headed two of my research projects, “Mitigating Chagas Disease: Fighting an Infection with an Infection” and “Modeling the Impact of Behavior Change on the Spread of Ebola.”

Dr. Latha Rajan
Position: Clinical Associate Professor
Company: Tulane University, Department of Public Health and Tropical Medicine
Phone: (504) 988-7970
Email: lrajan@tulane.edu
Relationship: Dr. Rajan has been my professor, and sought me out to be her teaching assistant. I have worked with her for the past 2 years.

Jason Sanchez
Position: Former President
Company: Rotary Club of New Orleans Riverbend
Phone: (504) 520-9484
Email: jasonsanchez@jds.nocoxmail.com
Relationship: Mr. Sanchez advised and worked with me to coordinate events for Rotaract at Tulane during my term as president.