Quindel D. Jones

Ph.D., Systems Modeling & Analysis
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SUMMARY

I am an applied mathematician with a strong foundation in computational biology, specializing in mathematical modeling of biological systems and health outcomes. I utilize techniques in dynamical systems, parameter estimation, multivariate regression, and machine learning algorithms to create models of complex biological phenomena to aid in understanding disease progression, social dynamics, and outcome prediction. My current research focuses on mechanistic modeling of immune responses to pathogens and environmental factors, with applications in disease prediction and healthcare optimization.

EDUCATION

Doctor of Philosophy, Systems Modeling and Analysis — August 2019 – May 2024
Virginia Commonwealth University (VCU)*, Richmond, VA*
- Southern Regional Education Board (**SREB**) Doctoral Scholar.

Bachelor of Science, Mathematics, Summa Cum Laude — May 2019
Jackson State University (JSU)*, Jackson, MS*
- Major: Mathematics

RESEARCH INTERESTS

- Computational Modeling
- Mathematical Biology
- Pathology & Public Health
- Disease Dynamics
- Healthcare Systems Modeling
- Systems Biology and Immunology

PUBLICATIONS

Mathematical Modeling of Sickle Cell Disease: a Literature Review
Quindel Jones, Reginald McGee, Rebecca Segal, Wally R Smith, Cecelia Valrie
Journal of Sickle Cell Disease, Volume 2, Issue 1 Published April 2025; DOI: https://doi.org/10.1093/jscdis/yoaf015

Prediction of Chronic Kidney Disease Degeneration with Machine Learning
Jamiree Harrison , Olayemi Adeyemi , Manuchehr Aminian, Anna K. Berryman, Georgia S. Brennan, Zhaoshu Cao, Claire S. Chang, Evelina Dubovski, Kossi Edoh, Olaniyi Iyiola, Quindel Jones, Yena Kim, Amy Lu, Kimberly Matsuda, Brady Metherall, Olaoluwa Ogunleye, Sandra A. Tsiorintsoa, Nilofar Varzgani, Per Wagenius, Yumeng Wang
Mathematics in Industry Reports Published April 2024; DOI: 10.33774/miir-2024-lj5gd-v2

Data Science and Social Justice in the Mathematics Community
Quindel Jones, Andrés R. Vindas Meléndez, Ariana Mendible, Manuchehr Aminian, Heather Zinn Brooks, Nathan Alexander, Carrie Diaz Eaton, Philip Chodrow
American Mathematical Society (AMS) Notices Published October 2023; DOI: 10.1090/noti2773

The Effects of Prime Supporters within a College Student's Support Network
David Chan, Michael D. Broda, Jeremy Winslow, Quindel Jones, Claire Luce, Holle A. McGinnis, Cannie A. Tomlinson, Haya Hamid, Joy Ma
Nonlinear Dynamics, Psychology, and Life Sciences Journal, Published October 2022; PMID: 36149269

Infinite Families of Asymmetric Graphs
Alejandra Brewer, Adam Gregory, Quindel Jones, Luke Rodriguez, Rigoberto Flórez, Darren Narayan AKCE International Journal of Graphs and Combinatorics, Published June 2020;
DOI: https://doi.org/10.1016/j.akcej.2019.08.011

EMPLOYMENT AND APPOINTMENTS

Postdoctoral Research Associate August 2024 - current
University of Florida, Laboratory for Systems Medicine
- Research focus on mechanistic modeling of immune responses to pathogens and environmental influences using differential equations and statistical modeling.
- Organize and complete semi-independent research projects using advanced mathematical modeling and data analysis techniques
- Worked closely with experimentalists and clinicians to refine model parameters and improve computational accuracy.

Graduate Research Assistant, NIH HEAL January 2023 – May 2024
VCU Department of Mathematics and Applied Mathematics, Virginia Commonwealth University
- Developed mathematical models of pain episodes in pediatric sickle cell patients, incorporating clinical data into ODE models.
- Utilized MATLAB to run simulations and analyze model predictions, presenting findings to interdisciplinary research teams.
- Organized and transformed pediatric sickle cell patient data files on pain and sleep to utilize in ODE mathematical model for pain episode prediction

Mathematics Instructor – Algebra with Applications August 2022-December 2022
VCU Department of Mathematics and Applied Mathematics
- Delivered course materials focused on the applications of algebra to real-world scenarios.
- Organized and instructed lessons that directed student energy on critical concepts, objectives, and skills
- Evaluated student performance based on quizzes, tests, and other graded activities *
- Assisted students in developing problem-solving skills and understanding the foundational concepts in mathematics.

Graduate Research Student May 2020 – August 2020
Active and Supportive Personal Networks (ASPN) Lab, Virginia Commonwealth University
- Conducted statistical analysis of survey data to investigate the role of prime supporters in students' social networks and academic outcomes.
- Utilized R Studio for demographic analysis and hypothesis testing, contributing to published work in a leading journal.

Mathematics Instructor – Algebra with Applications (online synchronous learning) June 2020-August 2020
VCU Department of Mathematics and Applied Mathematics

- Taught online algebra courses with a focus on practical applications in various fields, enhancing students' understanding through interactive virtual learning tools.

Graduate Teaching Assistant August 2019- December 2022
VCU Graduate School

- Led study sessions, helped organize lectures, and provided one-on-one tutoring for undergraduate mathematics courses.
- Worked closely with faculty to support course development and grading.

REU Research Student June 2018 - July 2018
NSF Research Experience for Undergraduates, Mathematics Department, Rochester Institute of Technology

- Conducted research in graph theory, establishing the existence of k-regular asymmetric Hamiltonian graphs.
- Utilized Mathematica for graph construction and validation.

TECHNICAL SKILLS

- **Programming Languages**: MATLAB, Python, R, Java, C
- **Software**: XPP, NetLogo, Mathematica, GitHub, LaTeX
- **Tools**: Microsoft Office (Word, Excel, PowerPoint), LaTeX, MATLAB
- **Other**: Data Visualization, Statistical Analysis, Mathematical Modeling, Machine Learning Algorithms

PRESENTATIONS

An ODE model for predicting pediatric patient pain in SCD based on patient sleep data (Talk)
Biomathematics and Ecology Education and Research (BEER), Richmond, VA, November 2023

An ODE model for predicting pediatric patient pain in SCD based on patient sleep data (Talk)
Sickle Cell Disease Research and Educational Symposium (FSCDR), Fort Lauderdale, FL, June 2022

An ODE model for predicting pediatric patient pain in SCD based on patient sleep data (Poster)
Biology and Medicine Through Mathematics Conference (BAMM), Richmond, VA, May 2022

Predictive Pediatric SCD Pain Model Formulation and Parameter Estimation (Poster)
Blackwell Tapia Conference (MSRI), Princeton, NJ, November 2021

Using Parameter Estimation for Mathematical Model Predicting Pediatric SCD Pain (Poster)
Symposium on Biomathematics and Ecology Education and Research (BEER), virtual, November 2021

The Effects of Prime Supporters on College Students' Education and Mental Health (Talk)
Biomathematics Seminar, Department of Systems Modeling & Analysis, VCU Richmond, VA, August 2020

The Asymmetric Index of a Graph and Families of Asymmetric Graphs (Talk)

Alejandra Brewer, Adam Gregory, Quindel Jones
Joint Mathematics Meetings (JMM), Baltimore, MD, January 2019

My REU and Conference Experience (Talk)
Undergraduate Mathematics Seminar, Department of Mathematics, JSU, September 2018

The Asymmetric Index of Graphs and Families of Asymmetric Graphs (Talk)
Alejandra Brewer, Adam Gregory, Quindel Jones
Young Mathematicians Conference (YMC), Ohio State University, August 2018

My Mathematics Journey (Talk)
Summer Mathematics Institute, Rochester Institute of Technology, June 2018

The Benefits of Conferences: My Experience at the Field of Dreams (Talk)
Undergraduate Mathematics Seminar, Department of Mathematics, JSU, November 2017

WORKSHOPS AND CERTIFICATIONS

SIAM: Mathematical Problems in Industry (MPI) Workshop.
New Jersey Institute for Technology (NJIT), Newark, New Jersey., June 2023

ICERM Data Science and Social Justice Workshop: Networks, Policy, and Education.
Brown University, Providence, RI, June 2022

MEMBERSHIPS/ORGANIZATIONS

VCU
- Society for Industrial and Applied Mathematics (SIAM), President of Student Chapter 2019-present
- Black Graduate Student Association (BGSA), Events Coordinator 2021-2022
- Association for Women in Mathematics 2019-present

JSU
- Pi Mu Epsilon 2018
- Math Alliance 2017
- Blue Ambassadors 2016

REFERENCES
References available upon request