CHRISTINA DURÓN

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ACADEMIC EMPLOYMENT

Postdoctoral Research Associate   *Aug 2019 – present*
Mathematics Department, University of Arizona

High School Teacher   *Aug 2013 – June 2019*
Mathematics Department, The Webb Schools of California

RESEARCH INTERESTS

Network Theory; Network Dynamics; Statistical Analysis and Modeling of Complex Networks; Mathematics-Biology

EDUCATION

Claremont Graduate University   *May 2019*
Ph.D. in Mathematics
- **Thesis**: The Distribution of Betweenness Centrality in Exponential Random Graph Models
- **Advisors**: Dr. Ami Radunskaya (Professor, Pomona College) and Dr. Johana Hardin (Professor, Pomona College)

University of Washington   *June 2013*
Master's in Applied Mathematics

Swarthmore College   *May 2012*
Bachelor of Arts in Mathematics, Computer Science Minor

PUBLICATIONS AND TECHNICAL REPORTS

Durón C. *Heatmap Centrality: A New Measure to Identify Super-Spreader Nodes in Scale-Free* Networks. PLoS ONE. 2020; 15(7): e0235690. doi: 10.1371/journal.pone.0235690

Durón C, Pan Y, Gutmann DH, Hardin J, Radunskaya A. *Variability of Betweenness Centrality and Its Effect on Identifying Essential Genes*. Bulletin of Mathematical Biology. 2019; 81(9): 3655-3673. doi: 10.1007/s11538-018-0526-z

Pan Y, **Durón C**, Bush EC, et al. *Graph Complexity Analysis Identifies an ETV5 Tumor-Specific Network in Human and Murine Low-Grade Glioma*. PLoS ONE. 2018; 13(5): e0190001. doi: 10.1371/journal.pone.0190001

Burkow D, **Durón C**, Heal K, Vargas V, Melara LA. *A Mathematical Model of the Emission and Optimal Control of Photochemical Smog*. Technical Report, MTBI-08- 07M, Mathematical and Theoretical Biology Institute, Arizona State University, 2011.

IN PREPARATION

Farrell A, **Durón C**. *Connections between Discrete SIR and Network Epidemic Models*.

Durón C. Update based on the original article *Linear Algebra, Computational* by G.W. Stewart, Wiley.

RESEARCH POSITIONS

Graduate Research Assistant   *Jan 2017 – June 2018*
Pomona College
- NIH funding under Dr. Ami Radunskaya and Dr. Johana Hardin

Jet Propulsion Laboratory Intern *June 2015*
California Institute of Technology
- Implemented the Extended Kalman Filter (EFK) and incorporated inter-robot measurements to improve the state estimation and localization of autonomous vehicles

Mathematical and Theoretical Biology Institute Researcher *June 2011*
Arizona State University
- Developed a mathematical model for the evaluation and analysis of the air pollution in Los Angeles

TEACHING EXPERIENCE

Instructor of Record
University of Arizona
- Math 129: Calculus II *Fall 2020*
- Math 475A: Mathematical Principles of Numerical Analysis *Fall 2020*
- Undergraduate Teaching Assistantship Seminar, Co-Organizer *Fall 2020*
- Math 163: Basic Statistics *Spring 2020*
- Math 122B: First Semester Calculus *Fall 2019*
- Math 196L: Precalculus Supplementary Seminar *Fall 2019*

Instructor of Record
The Webb Schools of California
- Advanced Placement Computer Science Principles *Fall 2018 – Spring 2019*
- Introduction to Computer Programming with Python *Fall 2014 – Spring 2018*
- Honors Precalculus *Fall 2014 – Spring 2019*
- Precalculus *Fall 2013 – Spring 2019*
- Integrated Mathematics 2 *Fall 2013 – Spring 2014*

CONFERENCE AND SEMINAR TALKS

Contributed
- **Identifying Super-Spreader Nodes in Scale-Free Networks using Network Centrality Measures** *Sept 2020*
  Arizona Postdoctoral Research Conference (Virtual)

- **Identifying Treatment Targets for Pediatric Gliomas using Network Centrality Measures** *June 2020*
  SIAM Conference on the Life Sciences (Virtual)

Seminar
- **Network Data Analysis Techniques on DESeq and RNASeq Data** *Nov 2019*
  University of Arizona

Other Talks
- **The Distribution of Betweenness Centrality in Exponential Random Graph Models** *April 2019*
  Doctoral Thesis Defense

- **A Mathematical Model of the Emission and Optimal Control of Photochemical Smog** *Aug 2011*
  The Mathematical and Theoretical Biology Institute (MTBI) at Arizona State University

DEVELOPMENT AS AN EDUCATOR

Certification
- **Effective Online Discussions** *June 2020*
  University of Arizona
  - Developed strategies for designing and facilitating effective online discussions that deepen learning, expand student exposure to curriculum, and increase student engagement

- **Teaching the Large Online Course** *June 2020*
  University of Arizona
    - Developed instructional practices for encouraging student engagement and motivation in a large online class, as well as for effectively managing administrative tasks such as monitoring student progress and conducting assessments

DEVELOPMENT AS A RESEARCHER

Workshops
- **Network Modeling for Epidemics** *Aug 2020*
  University of Washington

- **BioBridge Clinic** *Jan 2020*
  University of California, Irvine

- **Computational Genomics Summer Institute** *May 2020*
  University of California, Los Angeles

OUTREACH AND SERVICE

Mentoring and Advising
- **Undergraduate Research Supervisor** *Fall 2020 – present*
  University of Arizona

- **Mathematics Undergraduate Teaching Assistantship (UTA) Program Mentor** *Fall 2020*
  University of Arizona

- **Math 485 Modeling Group Mentor** (Team of 4 undergraduates), *Instant Decision for Credit Card Application* *Spring 2020*
  University of Arizona

- **Math Club Advisor** *Fall 2017 – Spring 2019*
  The Webb Schools of California

Departmental Service
- **Mathematics Undergraduate Teaching Assistantship (UTA) Program**, Co-Director *Fall 2020 – present*
  University of Arizona

- **Postdoctoral Group Governance Non-Academic Liaison** *Spring 2020 – present*
  University of Arizona

Service to the Discipline
- **Reviewer for Revista de Matemática: Teoría y Aplicaciones** *Oct 2019*

- **Mathematics and MATLAB Summer Workshop,** Co-Coordinator *June 2016, June 2017, June 2018*
  Claremont Graduate University

- **Mathematics and MATLAB Summer Workshop**, Co-Instructor *June 2016, June 2017*
  Claremont Graduate University

Outreach
- **Math Circle** *Aug 2019 - present*
  University of Arizona

HONORS AND AWARDS

Five Star Faculty (Nomination) *Feb 2020*
University of Arizona

The Jean E. Miller Excellence in Teaching Award *June 2018*
The Webb Schools of California

The Thompson and Vivian Webb Excellence in Teaching Award   *June 2015*
The Webb Schools of California

The Heinrich W. Brinkmann Mathematics Prize   *June 2012*
Swarthmore College

FUNDING

Research Grants
- **Collaborative Research Grant for Postdocs** ($1,500)   *June 2020*
  University of Arizona

Travel Awards
- **TDA-BIO** ($1,000)   *Oct 2016*
  ACM Conference on Bioinformatics, Computational Biology, and Health Informatics

Fellowships
- **Clinic Fellowship** ($900)   *Jan 2020*
  University of California, Irvine

- **Daniel Pick Fellowship** ($10,000)   *Oct 2017*
  Claremont Graduate University

- **Joseph and Elizabeth Peeler Endowed Fellowship** ($32,570)   *Aug 2015 – June 2017*
  Claremont Graduate University

- **CGU Mathematics Fellowship** ($13,700)   *Aug 2014 – June 2015, June 2017*
  Claremont Graduate University

- **CGU Minority Fellowship** ($2,000)   *Aug 2014 – June 2016*
  Claremont Graduate University

SKILLS

Programming Languages
- C (Moderate proficiency)
- C++ (Moderate proficiency)
- MATLAB (Proficient)
- Python (Proficient)
- R (Proficient)

Scientific Applications
- GitHub
- LaTex
- RSweave

Languages
- English (Native)
- Spanish (Reading, writing, and conversational speaking)