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. (2021). *Linear Algebra, Computational*. In Wiley StatsRef: Statistics Reference Online. Davidian, M., Kenett, R.S., Longford, N.T., Molenberghs, G., Piegorsch, W.W., and Ruggeri, F., eds. Chichester: John Wiley & Sons. 2021; Article No. stat00459.pub2. doi:10.1002/9781118445112.stat00459.pub2.

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

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

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

Burkow. D., **Durón, C.**, Heal, K., Vargas, V., & Melara, L. (2011). *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.

In Preparation

Farrell A, **Durón C.** *A Mean Field Approximations of Epidemics on an Erdős–Rényi Network Model.*

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 363: Introduction to Statistical Methods (Enrollment 51) *Spring 2020*
- Math 129: Calculus II (Enrollment 35) *Fall 2020*
- Math 475A: Mathematical Principles of Numerical Analysis (Enrollment 28) *Fall 2020*
- Undergraduate Teaching Assistantship Seminar, Co-Organizer (Enrollment 15) *Fall 2020 - present*
- Math 163: Basic Statistics (Enrollment 38) *Spring 2020*
- Math 122B: First Semester Calculus (Enrollment 36) *Fall 2019*
- Math 196L: Precalculus Supplementary Seminar (Enrollment 30) *Fall 2019*

Instructor of Record
The Webb Schools of California
- Advanced Placement Computer Science Principles (Enrollment 15) *Fall 2018 – Spring 2019*
- Introduction to Computer Programming with Python (Enrollment 15) *Fall 2014 – Spring 2018*
- Honors Precalculus (Enrollment 12) *Fall 2014 – Spring 2019*
- Precalculus (Enrollment 15) *Fall 2013 – Spring 2019*
- Integrated Mathematics 2 (Enrollment 15) *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 – present*
  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

- **Vice President, Postdoctoral Group Governance** *Fall 2020 – present*
  University of Arizona
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- **Mathematics Undergraduate Teaching Assistantship (UTA) Program**, Co-Director *Fall 2020 – present*
  University of Arizona

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

Service to the Discipline

- **Reviewer for:**
  - Indian Journal of Discrete Mathematics *Nov 2020*
  - DNA and Cell Biology *Jan 2020*
  - 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

- **Using Network Centrality Measures to Identify Unknown Regulatory Pathways in Pediatric Gliomas** *Sept 2020*
  Talk given to The MathCats Club (Undergraduate Math Club) at University of Arizona

- **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)