

EDUCATION

- Georgia Institute of Technology** Atlanta, GA
Ph.D. Quantitative Biosciences, School of Biological Sciences
Advisor: Joshua S. Weitz 2018–Current
- Universidad Nacional Autonoma de Mexico** Cuernavaca, Mexico
B.S. in Genomic Sciences 2012–2016
- Thesis: “An in silico Combination Therapy Model against *Pseudomonas aeruginosa* growing in vitro and in vivo”

RESEARCH EXPERIENCE

- Georgia Institute of Technology** Atlanta, GA
Technician at the Weitz Group, School of Biological Sciences 2017–2018
- Translation of the Foundations of Quantitative Biosciences course laboratories into MATLAB Live
 - Oceanographic data visualization & organization from 2015 cruises.
 - Development of an ODE model of phage-antibiotic combination therapy against MDR *P.a.* infections.
- Icahn School of Medicine at Mount Sinai** New York City, NY
Technician at Meyer-Rojas Lab 2016–2017
- Gene Expression and Proteomic data collection of *B. subtilis* under different environmental conditions.
 - Development of new approaches to integrate gene expression and/or proteomic data into FBA metabolic models of *B. subtilis*.
 - Parameter sensitivity analysis of the integrated gene expression-FBA model.
 - Exploratory analysis of correlation between gene expression and growth rates under different carbon conditions
- Thomas J. Watson Research Center, IBM** Yorktown Heights, NY
Intern at Meyer-Rojas lab Fall 2015
- Reproduce an EcoCyc-based metabolic model of *Escherichia coli* K-12
 - Study enzyme localization in the context of *E. coli* metabolism
 - Construct a Transcription Factor-Enzyme network using metabolic and gene regulatory data
- Center for Genomic Sciences, UNAM** Cuernavaca, Mexico
Undergrad intern at Peña-Miller lab 2014–2015
- Develop an ODE-based model to describe population dynamics of the non-conjugative plasmid pNUK73 in *P.a.* populations.
 - Programming a numerical method to find which minimum rates of horizontal plasmid transfer conserve the non-conjugative plasmid within *P.a.* populations.
 - Develop a stochastic version of the aforementioned ODE model to study the role of stochasticity in plasmid evolution.
 - Use of Knn algorithms to predict the optical densities of bacterial populations using control and antibiotic treatment data sets

PUBLICATIONS

- [1] **Rodriguez-Gonzalez, R. A.**, C. Y. Leung, B. K. Chan, P. E. Turner, and J. S. Weitz, “Quantitative models of phage-antibiotic combination therapy”, *mSystems*, vol. 5, no. 1, 2020.
- [2] J. S. Weitz, S. J. Beckett, A. R. Coenen, D. Demory, M. Dominguez-Mirazo, J. Dushoff, C.-Y. Leung, G. Li, A. Măgălie, S. W. Park, **Rodriguez-Gonzalez, R. A.**, S. Shivam, and C. Y. Zhao, “Modeling shield immunity to reduce covid-19 epidemic spread”, *Nature medicine*, pp. 1–6, 2020.
- [3] R. Peña-Miller, **Rodríguez-González, R. A.**, R. C. MacLean, and A. San Millan, “Evaluating the effect of horizontal transmission on the stability of plasmids under different selection regimes”, *Mobile genetic elements*, vol. 5, no. 3, pp. 29–33, 2015.

TEACHING

- **Laboratory Teaching Assistant** at Georgia Institute of Technology Spring 2019
Biological Principles (BIOL 1510)
- **Recitation Teaching Assistant** at Georgia Institute of Technology Fall 2018
Organismal Biology (BIOL 1520)

SKILLS

- **Programming languages:** MATLAB, Python, R, Pearl, LaTeX, Unix shell
- **Graphic design:** Inkscape, Adobe Illustrator (beginner)

LANGUAGES

- **Spanish:** Native
- **English:** Read/Write: high proficiency

AWARDS

- Best poster award at the conference Evolution of Complex Life
poster title: “Quantitative models of phage-antibiotic combination therapy” 2019
- Ranked in the top 3 among second year students of the Undergraduate program on Genomic Sciences 2014
- Scholarship holder for the XVI Autumn School and X National Meeting of Mathematical Biology
UNAM, Queretaro 2014

CONFERENCE PRESENTATIONS

- **International Physics of Living Systems Annual Meeting** 2019
Center for NanoScience, LMU
poster presentation
- **Evolution of Complex Life** 2019
Georgia Institute of Technology
poster presentation