Ivan Ramirez Zuniga

University of Pittsburgh
Department of Mathematics
317 Thackeray Hall
Pittsburgh, PA 15260

Email: ivr3@pitt.edu
Tel: (423)631-2446

CITIZENSHIP

Costa Rica with permanent residency in the U.S.

EDUCATION

Ph.D., Mathematics, University of Pittsburgh, 2020 (Expected).
Advisors: Dr. D. Swigon and Dr. J. Rubin.

MS., Mathematics, East Tennessee State University, 2014.
Thesis: "Mathematical Modeling of Immune Responses to Hepatitis C Virus Infection" .
Advisor: Dr. Ariel Cintrón-Arias.

B.S, Mathematics, University of Costa Rica, 2010.

RESEARCH INTERESTS

Mathematical immunology and bioenergetics, infectious diseases, optimal control, differential equations, epidemiology, parameter estimation.

AWARDS

1. Andrew Mellon Predoctoral Fellowship, University of Pittsburgh, 2019-2020.

2. Arts and Sciences Graduate Fellowship, University of Pittsburgh, 2014-2015.

PUBLICATIONS

1. **I. Ramirez Zuniga**, J.E. Rubin, D. Swigon, and G. Clermont. *Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response*. Journal of Theoretical Biology. Vol 460, 101-114. (2019).

2. **I. Ramirez Zuniga** *Mathematical Modeling of Immune Responses to Hepatitis C Virus Infection* (2014). Electronic Theses and Dissertations. Paper 2425. https://dc.etsu.edu/etd/2425

3. R. Brady, C. Puelz, **I. Ramirez Zuniga**, K. Larripa, M.S. Olufsen. *A coupled model exploring the cardiovascular response to an acute inflammatory event*. Proc 5th Int Conf Comp Math Biomed Eng (CMBE) 2017 Vol 1.

PRESENTATIONS

1. Poster presentation: "A Data-driven Mathematical Study of the Role of Energy in Sepsis" at the workshop :Summit on the Rules of Life at The Mathematical Biosciences Institute (MBI), Columbus OH, June 2019.

2. Talk: "Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response" at the Biology and Medicine Through Mathematics Conference (BAMM), Virginia Commonwealth University, Richmond VA, May 2019.

3. AMS Microconference on Parameter Estimation. Talk: "Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response" at the at the Marriot City Center, Minneapolis MN, August 2018.

4. SIAM conference on the life sciences (LS18). Talk: "Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response" at the Radisson Blu Minneapolis, Minneapolis MN, August 2018.

5. Research training group in mathematical biology "Parameter Estimation for Mechanistic Biological Models".Poster presentation: "Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response". NC State University, Raleigh NC, July 2018.

6. Host-pathogens dynamics. Poster presentation: " Mathematical Modeling of Energy Consumption in the Acute Inflammatory Response", The Mathematical Biosciences Institute (MBI), Columbus OH, February 2018.

7. SIAM Conference on the Life Sciences 2016. Poster presentation: " Mathematical Modeling of the Acute Inflammatory Response and Energy Consumption ", Boston, MA July 2016.

8. Appalachian Student Research Forum 2014, "Sensitivity Analysis and Optimal Control Treatment of Hepatitis C Virus Dynamics", East Tennessee State University, Johnson City, TN April 2014.

9. Week of Methods to Reduce Dimension in Data Analysis, Poster presentation, "Project 6x4 UEALC". Guanajuato, Mexico, organized by Centro de Investigaciones Matemáticas , CIMAT, and by Rice University, April, 2010.

ATTENDED CONFERENCES, WORKSHOPS, SUMMER SCHOOLS

1. Workshop: Summit on the Rules of Life at The Mathematical Biosciences Institute (MBI), Columbus OH, June 2019.

2. Biology and Medicine Through Mathematics Conference (BAMM), Virginia Commonwealth University, Richmond VA, May 2019.

3. Joint Mathematics Meetings (JMM), Baltimore MD, January 2019.

4. Micro-conference: AMS Microconference on Parameter Estimation at the Marriot City Center, Minneapolis MN, August 2018.

5. SIAM conference on the life sciences (LS18) at the Radisson Blu Minneapolis, Minneapolis MN, August 2018.

6. Workshop : Research training group in mathematical biology "Parameter Estimation for Mechanistic Biological Models". NC State University, Raleigh NC, July 2018.

7. Workshop :Host-pathogens dynamics at The Mathematical Biosciences Institute (MBI),Columbus OH, February 2018.

8. Parameter Estimation and Uncertainty Quantification for Dynamical Systems, University of Pittsburgh, Pittsburgh PA, March 2017

9. SIAM Conference on the Life Sciences 2016, Boston, MA July 2016.

10. Mathematics Research Communities - Mathematics in Physiology and Medicine, Snowbird Utah, June 2016.

11. Summer School, "The Joint 2015 CAMBAM-MBI-NIMBioS" in Nonlinear Dynamics in Biological Systems at McGill University, Montreal, June 2015.

12. Tutorial "Parameter Estimation for Dynamic Biological Models" at NIMBioS, May 2014.

13. SEARCDE 2013, University of Tennessee, Knoxville, TN, September 2013.

14. The Society for Mathematical Biology Annual Meeting and Conference, Knoxville, TN 2012.

15. Math Schools for Latin America and the Caribbean, EMALCA, organized by University of Costa Rica, 2012.

16. International Symposium of Applied Methods on Sciences, SIMAC, organized by University of Costa Rica, 2012.

17. International Symposium of Applied Methods on Sciences, SIMAC, organized by University of Costa Rica, 2008.

18. International Symposium of Applied Methods on Sciences, SIMAC, organized by University of Costa Rica, 2006.

COMPUTER SKILLS

Languages: Java and MATLAB.

Tools: XPP-Aut, Mathematica, Maple, and LaTeX.

Platforms: Linux, Windows.

LANGUAGES

Spanish(Native Language)
English(Spoken fluently)

TEACHING EXPERIENCE

Teaching Assistant, Fall 2014 − Present Day
Department of Mathematics, University of Pittsburgh.

Instructor, Summer 2019.
Department of Mathematics, University of Pittsburgh.
Course Taught: MATH 0120 Business Calculus.

Instructor, Summer 2018.
Department of Mathematics, University of Pittsburgh.
Course Taught: MATH 0240 Calculus III.

Instructor, Summer 2017.
Department of Mathematics, University of Pittsburgh.

Course Taught: MATH 0230 Calculus II.

Instructor, Summer 2015.
Department of Mathematics, University of Pittsburgh.
Course Taught: MATH 0290 Differential Equations.

Instructor, Fall 2013 − Summer 2014.
Department of Mathematics, East Tennessee State University (ETSU).
Courses Taught: Calculus I, Calculus II.

Instructor, June-July − 2013
Calculus and Advanced Algebra and Trigonometry
Upward Bound program, East Tennessee State University (ETSU)

Instructor, 2009 − December 2012
Department of Mathematics, Universidad de Costa Rica (UCR)
Courses Taught: Calculus I, Calculus II, Linear Algebra, and Differential Equations.

High School Teacher, 2010 − December 2012
Colegio Científico Costarricense (STEM High School type)
Courses Taught: Calculus I and Precalculus.

Instructor, 2009 − 2010
Department of Mathematics, Universidad Fidelitas.
Courses Taught: Calculus III.

NON-ACADEMIC ACTIVITIES

1. Participant, 1st World Mind Sports Games (Bridge), October 2008, Beijing, China.

2. Participant, 1st World Youth Bridge Congress, August 2009, Istanbul, Turkey.

3. Champions, 25th Central American and Caribbean Bridge Championship, May 2009, Guadeloupe Island.

REFERENCES

Dr. David Swigon, swigon@pitt.edu, University of Pittsburgh, Pittsburgh, PA.

Dr. Jonathan Rubin, jonrubin@pitt.edu, University of Pittsburgh, Pittsburgh, PA.

Dr. Ariel Cintrón-Arias, cintronarias @etsu.edu, East Tennessee State University, Johnson City, TN.