

Ian Lizarraga

CONTACT INFORMATION	489 Carlsaw Building Mathematics Department University of Sydney Camperdown 2006, NSW Australia	Email: ian.lizarraga@sydney.edu.au Homepage: https://ianlizarraga.github.io/
ACADEMIC POSITIONS	2018–2020	Postdoctoral Fellow University of Sydney School of Mathematics and Statistics <i>Supervisor:</i> Martin Wechselberger
	2017–2018	Visiting Assistant Professor Cornell University Math Department
EDUCATION	2011–2017	PhD in Applied Mathematics Cornell Center for Applied Mathematics <i>Advisors:</i> John Guckenheimer & Steven Strogatz
	2008–2011	BA in Mathematics and Honors Physics Northwestern University <i>Thesis advisor:</i> Frederic Rasio
RESEARCH INTERESTS	Geometric singular perturbation theory, model reduction in coupled oscillators, computational techniques for invariant manifolds	
PUBLICATIONS AND PROJECTS	<i>Preprints and drafts are available on https://ianlizarraga.github.io/</i> <ul style="list-style-type: none">• I.L. and T. Vo, <i>Spatiotemporal canards and trigger waves in reaction-diffusion equations</i>, in progress (2020)• I.L. and M. Wechselberger, <i>Delayed and singular Hopf bifurcations in nonstandard slow-fast systems</i>, in progress (2020)• I.L., R. Marangell, and M. Wechselberger, <i>Contact singularities in nonstandard slow-fast systems</i>, arXiv:2004.01825 (2020)• I.L. and M. Wechselberger, <i>Computational singular perturbation method for nonstandard slow-fast systems</i>, to appear in SIADS, arXiv:1906.06049 (2019)• I.L., <i>Modeling mixed-mode oscillations near a tangency of slow manifolds</i>, preprint available on homepage, accepted to Chaos (2019)• J. Guckenheimer and I.L., <i>Shilnikov homoclinic bifurcation of mixed-mode oscillations</i>, SIAM J. Appl. Dyn. Syst. 14-2 (2015)• I. Kloumann, I.L., and S. Strogatz, <i>Phase diagram for the Kuramoto model with van Hemmen interactions</i>, Physical Review E 89, 012904 (2014)• J. Teyssandier, S. Naoz, I.L., and F. Rasio, <i>Extreme orbital evolution from hierarchical secular coupling of two giant planets</i>, The Astrophysical Journal 779 166 (2013)	

THESES

- *Complex Mixed-Mode Oscillations and a Search for Oscillator Glass*, Cornell University Ph.D. Thesis (2017)
- *Secular Dynamics of Three-Body Systems and the Origins of Retrograde Hot Jupiters*, Northwestern University Senior Thesis (2011)

TALKS

2020 Mar	VIC-Anziam Lecture, University of Melbourne, Australia [†] (postponed due to COVID-19 pandemic)
2020 Mar	Applied Maths Seminar, Monash University, Australia [†] (postponed due to COVID-19 pandemic)
2020 Feb	ANZIAM, Hunter Valley, NSW, Australia
2019 Dec	Applied Maths Seminar, UNSW, Australia [†]
2019 Nov	SDG Conference, Margaret River, WA, Australia
2019 July	Equadiff, Universiteit Leiden, Netherlands [†]
2019 July	Edinburgh Slow-Fast-Ival Workshop, Edinburgh, UK
2019 May	SIAM Conference on Dynamical Systems, Snowbird, UT, USA
2019 Feb	ANZIAM, Nelson, New Zealand
2018 Nov	SDG Conference, Blackheath, NSW, Australia
2018 Oct	Sydney Dynamics Group Seminar [†] , Sydney, NSW
2017 Aug	Cornell University Applied Math Talk, Ithaca, NY, USA
2015 May	SIAM Conference on Dynamical Systems [†] , Snowbird, UT, USA
2015 Mar	Cornell Dynamical Systems Seminar, Ithaca, NY, USA
2014 Jul	SIAM Annual Meeting, Chicago, IL, USA
2013 Nov	Cornell SCAN Seminar, Ithaca, NY, USA [†]
2012 Dec	Cornell Topics in PDEs Seminar, Ithaca, NY, USA

[[†] invited talks]

HONORS AND AWARDS

2019	Robert Bartnik Visiting Fellowship, Monash University
2019	Accommodation Funding, TU Munich, Germany
	Dynamics & Geometry Summer School
2014	SIAM Student Travel Award
2011	Cornell University Graduate Research Fellowship
2011	Magna cum laude, Phi Beta Kappa, Sigma Pi Sigma
2011	Rhodes Scholarship finalist
2011	CIERA Summer Research Funding (PI: Fred Rasio)
2010	Belize Ministry of Education Senior Fellowship (USD 20,000)
2010	Northwestern University Summer Research Grant
2010	Oak Ridge National Laboratory Summer Biophysics Grant
2009	NSF Summer Research Funding (PI: Adilson Motter)
2008	Belize Ministry of Education CAPE First Prize (USD 40,000)

TEACHING

Instructorships

2020 Sem 1	Math 3063: Differential Equations with Applications to Biology (120 students)
2019 Sem 1	Math 3063: Differential Equations with Applications to Biology (120 students)
2018 Sp	Math 1110: Calculus I (60 students)
2017 Fa	Math 1120: Calculus II (60 students)

TA: Teaching Assistantship; GA: Grading Assistantship

2017 Sp	TA	Math 2210: Multivariable Calculus
2016 Fa	TA	Math 2940: Linear Algebra for Engineers (Head TA for 15 sections and ~450 students)
2016 Su	GA	Math 1110: Calculus I
2016 Sp	TA	Math 1106: Calculus for the Life and Social Sciences
2015 Fa	TA	Math 2210: Linear Algebra
2015 Sp	TA	Math 2940: Linear Algebra for Engineers
2014 Fa	GA	Math 4200: Diff Eqs. and Dynamical Systems
2013 Sp	GA	MAE 5780: Nonlinear Dynamics and Chaos
2012 Fa	TA	Math 1910: Single Variable Calculus

SERVICE	2020	Organizer, Matrix Institute Workshop on Multiple-Timescale Dynamical Systems
	2019	Organizer, USyd Applied Mathematics Seminar
	2019	Organizer, SIAM DS19 (two minisymposia, 11 speakers total)
	2012 – 2015	President, Cornell SIAM Student Chapter
	2012 – 2013	Member, CAM Minority Student Forum
	2010 – 2011	Service Chair, Alpha Phi Omega Service Fraternity

COMPUTING LANGUAGES	MATLAB, Mathematica, FORTRAN, C
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REFERENCES	Martin Wechselberger , Professor of Mathematics Postdoctoral Supervisor +61-2-9351 3860 , wm@maths.usyd.edu.au
	John Guckenheimer , Abram R. Bullis Professor Emeritus of Mathematics Graduate Advisor Math Department, Cornell University +1 (607) 255-8290, jmg16@cornell.edu
	Richard Rand , Professor PhD Committee Member Math Department, Cornell University +1 (607) 255-8198, rrand@cornell.edu
	Steven Strogatz , Jacob Gould Schurman Professor of Applied Mathematics Graduate Advisor Math Department, Cornell University +1 (607) 255-5999, shs7@cornell.edu