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## Degrees

- **Ph.D. Mathematics**, University of Hawai'i at Mānoa, 2015 (expected).  
*Indirect methods for spacecraft trajectory optimization in the Earth-Moon system*
- **B.S. Mathematics, Statistics minor**, Grand Valley State University, 2009.

## Experience

- **Teaching Assistant**  
*University of Hawai'i at Mānoa* May 2014-present  
*Department of Mathematics* August 2013-December 2013  
August 2009-August 2011
- **Research Assistant**  
*University of Hawai'i at Mānoa* January 2014-May 2014  
*Department of Mathematics*
- **SUPER-M K-12 Graduate Fellow**  
*University of Hawai'i at Mānoa* August 2011-August 2013  
*Department of Mathematics*
- **Undergraduate Researcher**  
*Grand Valley State University* May 2008-August 2008  
*Department of Mathematics*

## Publications

- M. Chyba, J. Coron, P. Gabriel, A. Jacquemard, G. Patterson, G. Picot, and P. Shang, (to appear, 2015).  
*Optimal geometric control applied to the protein misfolding cyclic amplification process.*  
Control and Observation of Nonlinear Control Systems with Applications to Medicine and Space Mechanics, Special issue of Acta Applicandae Mathematicae.
- M. Chyba, G. Patterson, G. Picot, M. Granvik, R. Jedicke, J. Vaubaillon, (2013).  
*Time-minimal orbital transfers to temporarily-captured natural Earth satellites.*  
Advances in Optimization and Control with Applications, Springer Proceedings in Mathematics.
- M. Granvik, R. Jedicke, B. Bolin, M. Chyba, G. Patterson, G. Picot, (2013).  
*Earth's Temporarily-Captured Natural Satellites - The First Step Towards Utilization of Asteroid Resources.*  
Asteroids. Prospective Energy and Material Resources, Springer-Verlag, pp 151-167.

- M. Chyba, G. Patterson, G. Picot, M. Granvik, R. Jedicke, J. Vaubaillon, (2013).  
*Designing rendezvous missions with mini-moons using geometric optimal control.*  
Journal of Industrial and Management Optimization (JIMO), special issue titled “Computational Methods for Optimization and Control.”
- J. Hodge, E. Marshall, G. Patterson, (2010).  
*Gerrymandering and convexity.*  
College Math. J. 41, no. 4, 312-324.

## Selected Awards

- Global Trajectory Optimization Competition (6th annual), 12th place, organized by Outer Planet Mission Analysis Group of the Jet Propulsion Laboratory (JPL), 2012.
- ARCS Foundation Scholar Award - Honolulu Chapter, University of Hawai‘i at Mānoa, 2012.
- Graduate Excellence in Teaching, Mathematics Department, University of Hawai‘i at Mānoa, 2011.
- 2011 George Polya Award, “Gerrymandering and Convexity,” MAA Journal, 2011.
- Excellent Poster Award, “Natural Earth Satellites & Optimal Orbital Transfers,” Math-for-Industry Forum, 2011.
- Most Outstanding Senior, Mathematics Department, Grand Valley State University, 2009.

## Projects

- **geoff(x) Website**  
*www.geoffofx.com* January 2014-present
- **Ethnomathematics Math Faculty**  
*University of Hawai‘i West O‘ahu* June 2012-July 2012

## Presentations

- Department seminar, University of Hawai‘i at Mānoa, *The optimization of a diagnostic amplification process*, Spring 2013.
- Department seminar, University of Hawai‘i at Mānoa, *Gerrymandering and convexity*, Fall 2009.
- Student Scholars Day presentation, Grand Valley State University, *The NFL and Wavelets*, Spring 2009.

- Invited speaker, Hope College, *A Sieve for Betweenness of Compact Sets*, Spring 2009.
- Senior thesis presentation, Grand Valley State University, *A Sieve for Betweenness of Compact Sets*, Fall 2008.
- Brief presentation, Mathfest (Madison, WI), *Gerrymandering and convexity*, Fall 2008.

## Teaching

- **University of Hawai'i at Mānoa**, *Teaching Assistant / Instructor*

MATH 100	Survey of Mathematics
MATH 134	Precalc: Elementary Functions
MATH 140	Precalc: Trig/Analytic Geometry
MATH 190	Introduction to Programming
MATH 203	Calculus for Business & Social Sciences
MATH 215	Applied Calculus I
MATH 241	Calculus I
MATH 251	Accelerated Calculus I
Science In Action	Introduction to Computer Programming
- **Samuel M. Kamakau Public Charter School**, *SUPER-M K-12 Graduate Fellow*

Grades 7-8	Mathematics enrichment
Grades 5-6	Mathematics enrichment
- **Kanuikapono Public Charter School**, *SUPER-M K-12 Graduate Fellow*

Grade 5	Mathematics enrichment
Grade 3	Mathematics enrichment