

# Patricio Jeraldo

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## Personal

Citizenship: Chilean Citizen

US Visa status / work authorization: H-1B (Sponsor: Mayo Clinic)

Languages: Spanish: native; English: read, written and spoken

## Academic and Research Interests

Quantitative and Computational Biology, Microbial Ecology and Metagenomics, Microbial Systems Biology, Bioinformatics

## Employment

### *Professional appointments*

March 2015 – Current: Research Scientist, Department of Surgery, Mayo Clinic

### *Postdoctoral*

April 2012 – March 2015: Carl R. Woese Institute for Genomic Biology, University of Illinois at Urbana-Champaign

April 2012 – March 2015: Department of Surgery, Mayo Clinic (joint with U. of Illinois)

## Education

Ph.D. Physics, University of Illinois at Urbana-Champaign, 2012

Thesis: Computational approaches to stochastic systems in physics and ecology

Advisor: Nigel Goldenfeld

M.S. Physics, University of Illinois at Urbana-Champaign, 2007

Magíster en Ciencias mención Física (equivalent to M.Sc. Physics), Universidad de Chile, 2004

Thesis: Quantitative Model for the Growth of Biomaterials: A Study of Avian Eggshell

Advisor: Fernando Lund

Licenciatura en Ciencias mención Física (equivalent to B.Sc. Physics), Universidad de Chile, 2002

## Skills

Scripting in Python, Bash and R, with emphasis on numerical and bioinformatics modules

Numerical programming in C/C++, Matlab, Java

Construction bioinformatics pipelines for high-throughput data analysis for 16S rRNA, shotgun metagenomics and clinical-grade microbial genome assembly

## Awards and Honors

L.S. Edelheit Family Biological Physics Fellowship, 2009

Teacher Ranked as Excellent, Physics 102 - College Physics: Electricity & Magnetism and Modern Physics, Spring 2006

Teacher Ranked as Outstanding, Physics 102 - College Physics: Electricity & Magnetism and Modern Physics, Spring 2007

Teacher Ranked as Excellent, Physics 101 - College Physics: Mechanics and Heat, Fall 2008

Teacher Ranked as Outstanding, Physics 213/214 - University Physics: Thermal and Statistical Physics, Quantum Physics, Fall 2011

Phi Kappa Phi Honor Society

## Publications

**P. Jeraldo**, J.L. Arias, F. Lund, S. Maeckelberghe and D. Walgraef, *Towards a quantitative model of eggshell growth: a two-dimensional study*, in Proceedings of the 9th International Symposium on Biomineralization, edited by J.L. Arias and M.S. Fernández (Editorial Universitaria, Santiago, Chile, 2007), pp. 155-164

M. Sipos, **P. Jeraldo**, N. Chia, A. Qu, A.S. Dhillon, M.E. Konkel, K.E. Nelson, B. White, and N. Goldenfeld, *Robust Computational Analysis of rRNA Hypervariable Tag Datasets*, PLOS ONE **5**, e15220 (2010)

**P. Jeraldo**, N. Chia, and N. Goldenfeld, *On the Suitability of Short Reads of 16S rRNA for Phylogeny-based Analyses in Environmental Surveys*, Environ. Microbiol. **13**, 3000-3009 (2011)

J. Brulc, C. Yeoman, M. Wilson, M. Berg-Miller, **P. Jeraldo**, S. Jindou, N. Goldenfeld, H. Flint, R. Lamed, M. Vodovnik, I. Borovok, K. E. Nelson, E. Bayer, and B. White, *Cellulosomics, a Gene-Centric Approach to Investigating the Intraspecific Diversity and Adaptation of Ruminococcus flavefaciens within the Rumen*, PLOS ONE **6**, e25329 (2011)

L. Angheluta, **P. Jeraldo**, and N. Goldenfeld, *Anisotropic velocity statistics of topological defects under shear flow*, Phys. Rev. E **85**, 011153 (2012) (also at arXiv:1201.5758)

**P. Jeraldo**, M. Sipos, N. Chia, J.M. Brulc, A.S. Dhillon, M.E. Konkel, C.L. Larson, K.E. Nelson, A. Qu, L.B. Schook, F. Yang, B.A. White and N. Goldenfeld, *Quantification of the relative roles of niche and neutral processes in structuring gastrointestinal microbiomes*, Proc. Nat. Acad. Sci. USA **109**, 9692-9698 (2012)

C. Yeoman, N. Chia, **P. Jeraldo**, M. Sipos, N. Goldenfeld and B.A. White, *The microbiome of the chicken gastrointestinal tract*, Anim. Health Res. Rev. **13**, 89-99 (2012)

M.R.S. Walther-Antônio, **P. Jeraldo**, M. Berg-Miller, C.J. Yeoman, K.E. Nelson, B.A. Wilson, B.A. White, N. Chia and D.J. Creedon, *Pregnancy's Stronghold on the Vaginal Microbiome*, PLoS ONE **9**, e98514 (2014)

- S.S. Kang, **P.R. Jeraldo**, A. Kurti<sup>1</sup>, M.E. Berg-Miller, M. D. Cook, K. Whitlock, N. Goldenfeld, J.A. Woods, B.A. White, N. Chia and J.D. Fryer, *Diet and exercise orthogonally alter the gut microbiome and reveal independent associations with anxiety and cognition*, *Mol. Neurodegener.* **9**, 6 (2014)
- A.G. Theofiles, S.A. Cunningham, N. Chia, **P. Jeraldo**, D.J. Quest, J.N. Mandrekar and R. Patel, *Pertussis Outbreak, Southeastern Minnesota, 2012*, *Mayo Clin. Proc.* **89**, 1378-1388 (2014)
- C.T. Seto, **P. Jeraldo**, R. Orenstein, N. Chia and J.K. DiBaise, *Prolonged use of a proton pump inhibitor reduces microbial diversity: implications for Clostridium difficile susceptibility*, *Microbiome* **2**, 42 (2014)
- P. Jeraldo**, K. Kalari, X. Chen, J. Bhavsar, A. Mangalam, B.A. White, H. Nelson, J-P. Kocher and N. Chia, *IM-TORNADO: A Tool for Comparison of 16S Reads from Paired-End Libraries*, *PLOS ONE* **9**, e114804
- A.G. Braundmeier, K.M. Lenz, K.S. Inman, N. Chia, **P. Jeraldo**, M.R.S. Walther-Antônio, M.E. Berg-Miller, F. Yang, D.J. Creedon, H. Nelson and B.A. White, *Individualized medicine and the microbiome in reproductive tract*, *Front. Physiol.* **6**, 97 (2015)
- S.P. Sadarangani, S.A. Cunningham, **P.R. Jeraldo**, J.W. Wilson, R. Khare and R. Patel, *Metronidazole- and carbapenem-resistant Bacteroides thetaiotaomicron, Rochester, Minnesota 2014*, *Antimicrob. Agents Chemother.* **59**, 4157-4161 (2015)
- P.R. Jeraldo**, Á. Hernández, B.A. White, D. O'Brien, D. Ahlquist, L. Boardman and N. Chia, *Draft Genome Sequences of 24 Microbial Strains Assembled from Direct Sequencing from 4 Stool Samples*, *Genome Announc.* **3**, e00526-15
- P.R. Jeraldo**, S.A. Cunningham, D. Quest, R.A. Sikkink, D. O'Brien, B.W. Eckloff, R. Patel, N. Chia, *Draft Genome Sequences of Nine Pseudomonas aeruginosa Strains, Including Eight Clinical Isolates*, *Genome Announc.* **3**, e01154-15
- A.P. Norgan, J.M. Freese, P.M. Tuin, S.A. Cunningham, **P.R. Jeraldo** and R. Patel, *Carbapenem- and Colistin-Resistant Enterobacter cloacae, Delta, Colorado, 2015*, *Antimicrob. Agents Chemother.* **60**, 3141-3144 (2016)
- M.E. Hasassri, T.G. Boyce, A. Norgan, S.A. Cunningham, **P.R. Jeraldo**, S. Weissman, R. Patel, R. Banerjee, J.M. Pogue and K.S. Kaye, *An Immunocompromised Child with Bloodstream Infection Caused by Two Escherichia coli Strains, One Harboring NDM-5 and the Other Harboring OXA-48-Like Carbapenemase*, *Antimicrob. Agents Chemother.* **60**, 3270-3275 (2016)
- J. Chen, K. Wright, J.M. Davis, **P.R. Jeraldo**, E.V. Marietta, J. Murray, H. Nelson, E.L. Matteson and V. Taneja, *An expansion of rare lineage intestinal microbes characterizes rheumatoid arthritis*, *Genome Med.* **8**, 43 (2016)
- P. Jeraldo**, Á. Hernández, H.B. Nielsen, X. Chen, B.A. White, N. Goldenfeld, H. Nelson, L. Boardman, D. Ahlquist and N. Chia, *Capturing one of the human gut microbiome's most wanted: reconstructing the genome of a novel butyrate-producing, clostridial scavenger from metagenomic sequence data*, *Front. Microbiol.* **7**, 783 (2016)
- M. Thoendel, **P.R. Jeraldo**, K.E. Greenwood-Quaintance, J.Z. Yao, N. Chia, A.D. Hanssen, M.P. Abdel, and R. Patel, *Comparison of microbial DNA enrichment tools for metagenomic whole genome sequencing*, *J. Microbiol. Methods* **127**, 141-145 (2016)
- E.V. Marietta, J.A. Murray, D.H. Luckey, **P.R. Jeraldo**, A. Lamba, R. Patel, H.S. Luthra, A. Mangalam and V. Taneja, *Human Gut-Derived Prevotella histicola Suppresses Inflammatory Arthritis in Humanized Mice*, *Arthritis Rheumatol.* **68**, 2878-2888 (2016)
- J. Chen, N. Chia, K.R. Kalari, J.Z. Yao, M. Novotna, M.M.P. Soldan, D.H. Luckey, E.V. Marietta, **P.R. Jeraldo**, X. Chen, B.G. Weinshenker, M. Rodriguez, O.H. Kantarci, H. Nelson, J.A. Murray and A.K. Mangalam, *Multiple sclerosis patients have a distinct gut microbiota compared to healthy controls*, *Sci. Rep.* **6**, 28484 (2016)

## References

Prof. Nicholas Chia, email: `chia.nicholas@mayo.edu`

Prof. Nigel Goldenfeld, email: `nigel@uiuc.edu`

Prof. Bryan White, email: `bwhite44@illinois.edu`

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