

Curriculum Vitae

Ewerton Rocha Vieira

Education

- September 2020– : Post-Doctoral at Rutgers University (supervisor: Konstantin Mischaikow).
- March 2015: PhD from Universidade de Campinas (advisor: Ketty Abaroa de Rezende).
- October 2014: International PhD internship for one year at Northwestern University (advisor: John Franks).
- February 2011: Master's degree from Universidade de Campinas.
- January 2009: BA degree with honors at Universidade de Brasília.

Research Interests

- Dynamics, Combinatorial Dynamics, Topology, Morse and Conley Theory.

Academic Positions

- 2020– : Post-Doctoral associated in the DIMACS (the Center for Discrete Mathematics and Theoretical Computer Science) Rutgers University.
- 2015–: Adjunct Professor of Mathematics, Universidade Federal de Goiás.

Visiting Positions

- 2020 February - : Visiting Professor at Rutgers University.
- 2016 January - 2016 February: Visiting Professor at Universidade de Brasília.
- 2015 February: Visiting Professor at University of Maine.
- 2014 October- 2015 October: Visiting Scholar at Northwestern University.

Teaching Experience

- 2022: Bootcamp: Dynamics, Data Analysis, and Robotic Control.
- 2015-2019: Taught undergraduate and graduate courses at Universidade Federal de Goiás.
- 2016: Taught graduate course at Universidade de Brasília.

Invited Conference Talks

- Workshop on Dynamics, Topology, and Robotic Control. Learning Global Dynamics from Data. 2021
- TRIPODS seminars (DIMACS-Rutgers). Combinatorial Description of Global Dynamics (an approach to solve ODE). 2021
- ICMC Summer Meeting on Differential Equations. Transition Matrix 2019
- XXI Brazilian Topology Meeting 2018, Satellite conference of ICM. Transition Matrix. 2018
- Mathematical Congress of the Americas. Detecting Bifurcations via Transition Matrix. 2017
- VIII Workshop of Dynamical Systems, July 3–6, 2016.
- Semana do IME, October 18–21, 2016.
- Dynamics, Topology and Computations. Będlewo, Poland. June 15 - 20, 2015.
- Matematyka Obliczeniowa, Uniwersytet Jagielloński, Krakow. June 11, 2015.
- Department of Mathematics & Statistics Colloquium Series, University of Maine. February, 2015.

Publications

Papers

- (1) **E. R. Vieira**, E. Granados, A. Sivaramakrishnan, M. Gameiro, K. Mischaikow and K. E. Bekris. Morse Graphs: Topological Tools for Analyzing the Global Dynamics of Robot Controllers, accepted WAFR-22 (Workshop on the Algorithmic Foundations of Robotics 2022).

- (2) **E. R. Vieira**, D. Nakhimovich, K. Gao, R. Wang, J. Yu and K. E. Bekris. Persistent Homology for Effective Non-Prehensile Manipulation, accepted ICRA-2022 (International Conference on Robotics and Automation 2022)
- (3) D. Lima, M. Silveira, **E. R. Vieira**. Covering action on Conley index theory. *Ergodic Theory and Dynamical Systems*, 1-33, 2022. doi:10.1017/etds.2022.13
- (4) A. Romero and **Vieira, E.R.** Existence of Periodic Orbits for Piecewise-Smooth Vector Fields with Sliding Region via Conley Theory, arXiv preprint, 2021.
- (5) Bastos, R., Rocco, N.R. and **Vieira, E.R.** Finiteness of homotopy groups related to the non-abelian tensor product *Annali di Matematica* (2019) No 1, 1–11.
- (6) R. Franzosa, **E. R. Vieira**. Transition Matrix Theory, *Transactions of the American Mathematical Society* 369 (2017) 11 7737–7764.
- (7) R. Franzosa, K. A. de Rezende, **E. R. Vieira**. Generalized topological transition matrix, *Topological Methods in Nonlinear Analysis* **48** No 1 (2016), 183–212.

Graduate Students Supervised

Ph.D:

- Angie Romero (co-advisor).

Masters:

- Cícero R. G. de Sousa Junior
- Thiago dos Santos Vieira.
- Jose Alex Lima
- Lenison Alves de Queiroz
- Celso Faria de Souza
- Theófilo Machado de Souza Neto
- Marcio Vaiz dos Reis.
- Wesley da Silva Carvalho
- Messias H. V. Silva

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