

Sean T. McQuade

PERSONAL STATEMENT

I am a Ph. D. graduate from Rutgers Camden. I work with, Traffic flow models, Opinion formation models, and Quantitative Systems Pharmacology models. I have experience both developing new models and augmenting existing ones with tools from control theory. I have a B.S. in mathematics, and I nearly finished my M.S. degree in mathematics when I joined the CCIB, Ph. D. program at Rutgers Camden. I am an associate researcher working with Professor Benedetto Piccoli and collaborating with the Bill and Melinda Gates Medical Research Institute. I am most proud of the urgent work we did in collaboration with Sarah Allred, the Faculty Director for The Senator Walter Rand Institute for Public Affairs to provide a mathematical model projecting the hospital bed shortages by county in NJ caused by coronavirus, this work was the main reference in a letter from Governor Murphy of NJ to president Trump on March 17, 2020.

Current Position: Associate Researcher.

EDUCATION

Ph.D. Center for Computational and Integrative Biology (CCIB), Rutgers Camden. September 2014 - May 2019. Rutgers Camden of Camden, NJ USA; GPA: 3.7 out of 4.0

MS (incomplete from entrance to CCIB program), Mathematics, June 2013 - May 2014. Rutgers Camden of Camden, NJ USA; GPA: 3.875 out of 4.0

BS, Mathematics - September 2003 - May 2007, Virginia Polytechnic Institute & State University of Blacksburg, VA USA GPA: 3.01 out of 4.0

SCIENTIFIC ACTIVITY

RESEARCH INTERESTS

- Systems Biology and Quantitative Systems Pharmacology: modeling and control of metabolism.
- Traffic Dynamics: FTL/Bando traffic models, and string stability of vehicles.
- Social Dynamics: Opinion formation models with influence dynamics.

TOP PUBLICATIONS

- “Regional Health System Shortfalls with a Novel COVID-19 Model.” Allred, Sarah R., et al. ”Regional Health System Shortfalls with a Novel COVID-19 Model.” (2020).
- “Linear-In-Flux-Expressions methodology: Towards a robust mathematical framework for quantitative systems pharmacology simulators” ST McQuade et. al. Gene Regulation and Systems Biology 2017 vol. 11, pp. 1-15 (2017).
- “Equilibria for Large Metabolic Systems and the LIFE Approach” ST McQuade et. al., Gene Regulation and Systems Biology 2017 vol. 11, pp. 1-15 (2017). ACC Proceedings.
- “Stability of Metabolic Networks via Linear-In-Flux-Expressions” ST McQuade et. al., Gene Regulation and Systems Biology 2017 vol. 11, pp. 1-15 (2017).
- “Interaction Network, State Space, and Control in Social Dynamics” A Aydoğdu et. al. (eds) Active Particles, Volume 1. Modeling and Simulation in Science, Engineering and Technology. Birkhäuser, Cham (2017)
- “Experimental and Mathematical Analyses Relating Circadian Period and Phase of Entrainment in *Neurospora crassa*” K Lee et. al., Journal of Biological Rhythms
- “Are commercially implemented adaptive cruise control systems string stable?” George Gunter, Derek Gloude-mans Raphael E Stern, Sean McQuade, Rahul Bhadani, Matt Bunting, Maria Laura Delle Monache, Roman Lysecky, Benjamin Seibold, Jonathan Sprinkle, Benedetto Piccoli, Daniel B. Work, arXiv preprint arXiv:1905.02108 (2019).

REFERENCES **Former Adviser, Benedetto Piccoli**, email: piccoli@camden.rutgers.edu

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