Joseph John Klobusicky

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Summary

Future Position: **Assistant Professor**. The University of Scranton. Department of Mathematics. Beginning September 2020.

Current Position: **National Research Council (NRC) Postdoctoral Fellow**. National Institute of Standards and Technology. Applied and Computational Mathematics Division. September 2019-Present.

Research Interests:

Major interests: Modeling in **applied probability and analysis**, with applications in

- Microstructure in material science
- Transport phenomena in microbiology

Other interests:

- Neural networks and machine learning
- Medical informatics and queueing theory
- Self assembly and nanotechnology
- Microfluidics

Education

May 2014	Ph.D. in Applied Mathematics, **Brown University**, Providence, RI **Thesis**: "Kinetic limits of piecewise deterministic Markov processes and grain boundary coarsening" **Advisor**: Prof. Govind Menon
May 2010	M.Sc. in Applied Mathematics, **Brown University**, Providence, RI
May 2009	M.S. in Mathematics, **Carnegie Mellon University**, Pittsburgh, PA
May 2009	B.S. in Mathematics, **Carnegie Mellon University**, Pittsburgh, PA

Previous Appointments

Sept 2016-June 2019	RTG Postdoctoral Researcher at Rensselaer Polytechnic Institute **Courses:** *Probability Theory with Applications* (Fall '16/'17) *Introduction to Differential Equations* (Spring '17/'18/'19, Fall '18)
Sept 2015-May 2016	Lecturer at Bucknell University **Courses:** *Introduction to Statistics* (Fall '15) *Introduction to Mathematical Modeling* (Spring '16)
May 2014-August 2016	Data scientist/applied mathematician at Geisinger Medical Center, Danville, PA
August 2010-May 2013	Teaching assistant at Brown University **Courses:** *Differential Equations* (Fall '10, Spring '11) Instructor at *Brown/Kobe University* *Supercomputing Summer School* (Summer '13)

Publications **(for preprints, please visit joeklobusicky.net)**

In preparation:

Hydrodynamic limit theorems for a piecewise deterministic Markov process of two species.
With Govind Menon.

Effective behavior of cooperative and nonidentical molecular motors.
With Peter Kramer and John Fricks.

Submitted:

Two-dimensional grain boundary networks: stochastic particle models and kinetic limits
With Govind Menon and Robert Pego.

Accepted:

(Journal articles)

Convergence of backpropagation with momentum for network architectures with skip connections
Chirag Agarwal, Joe Klobusicky, and Dan Schonfeld. Journal of Computational Mathematics. In press.

Concentration inequalities for a removal-driven thinning process.
Joe Klobusicky, Govind Menon. Quart. Appl. Math. 75 (2017), pp. 677-696.

Aberrations in the iron regulatory gene signature are associated with decreased survival in diffuse in infiltrating gliomas.
Joe Klobusicky, Cody Weston, Jennifer Weston, James Connor, Steven A. Toms and Nicholas F. Marko. PLoS One. 11.11(2016): e0166593.

Building polyhedra by self-folding: theory and experiment.
Ryan Kaplan, Joe Klobusicky, Shivendra Pandey, David H. Gracias, and Govind Menon. Artificial Life. Vol. 20, Issue 4, Fall 2014, pp. 409-439.

Self-assembly of mesoscale isomers: the role of pathways and degrees of freedom.
Shivendra Pandey, Daniel Johnson, Ryan Kaplan, Joe Klobusicky, Govind Menon, and David H. Gracias. PloS One, 9.10 (2014): e108960.

(Conference Publications)

A network-theoretic analysis of hospital admission, transfer, and discharge data.
Joe Klobusicky, Maria Cioffi, Naba Mukhtar, Nathan C. Ryan. In AMIA Summit on Clinical Research Informatics Proceedings. Vol. 2018, pp. 45-53.

Evolving patient compliance trends: integrating clinical, insurance, and extrapolated socioeconomic data.
Joe Klobusicky, Arun Aryasomayajula. and Nicholas F. Marko. In AMIA Annual Symposium Proceedings. Vol. 2015, pp. 766-774.

Organizational Activities

Organizer: RTG/Dyanamical Systems Seminar. Fall 2017-Spring 2019.
Assistant coach: Mathematical and Interdisciplinary Contest in Modeling (MCM/ICM).

Awards/Grants

Dunmu Ji Award. Brown University. Awarded for recognition of a particularly original and independent doctoral thesis.

Geisinger/Bucknell University BGRI grant. "A graph theoretic method for detecting sepsis". 2015- 2016. $50,000 award. July 2015.

Computer Languages

Python, R, Matlab

Presentations

University of Scranton. Scranton, PA. January 2020.

ICIAM 2019. Valencia, Spain. July 2019.

11th IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena. Athens, GA. April 2019.

College of Charleston. Charleston, SC. March 2019.

University of California, Santa Barbara. Santa Barbara, CA. March 2019.

California State Univeristy, Fullerton, Fullerton CA. February 2019.

Lake Forest College. Lake Forest, IL. February 2019.

Joint Mathematics Meetings. Baltimore, MD. January 2019.

University of Southern Florida. Tampa, FL. January 2019.

University of Southern Connecticut. New Haven, CT. December 2018.

Lefschetz Center for Dynamical Systems Seminar. Brown University. Providence, RI. August 2018.

SIAM Life Sciences 2018. Minneapolis, MN. August 2018.

Mechbio Conference 2018. Poster. UC Irvine. Irvine, CA. July 2018.

SIAM Mathematical Aspects of Material Science. Portland, OR. July 2018.

Biology and Medicine Through Mathematics. Virginia Commonwealth University. Richmond, VA. June 2018.

Mathematics Colloquium. University of New Mexico. May 2018.

Frontier Probability Days. Oregon State University. Corvallis, OR. April 2018.

AMIA 2018 Informatics Summit. San Francisco, CA. March 2018.

Society of Mathematical Biology Annual Meeting. Salt Lake City, UT. July 2017.

Frontiers in Applied and Computational Mathematics 2017. New Jersey Institute of Technology. Newark, NJ.June 2017.

2017 SIAM Dynamical Systems. Minisymposium organizer for "Random Dynamics in Molecular Biology". Snowbird, UT. May 2017.

10th IMACS Conference on Nonlinear Evolution Equations and Wave Phenomena. Athens, GA. April 2017.

Joint Mathematics Meetings 2017. Atlanta, GA. January 2017.

AIMS 2016. Orlando, Florida. July 2016.

SIAM Mathematical Aspects of Material Science. Philadelphia, PA. May 2016.

Applied Math Days. RPI. Troy, NY. April 2016.

RTG Seminar. RPI. Troy, NY. February 2016.

Student Talk Series. Bucknell University. Lewisburg, PA. February, 2015.

Bucknell University/Geisinger Lecture Series. Bucknell University. Lewisburg, PA. January, 2015.

Lefschetz Center for Dynamical Systems Seminar. Brown University. Providence, RI. February 2014.

Graduate Student Seminar. Brown University. Providence, RI. November 2013.

Poster. NSF Building Engineered Complex Systems Workshop. Washington D.C.. January 2013.