Zhiyuan(Jason) Jia

Department of Mathematics
The University of Texas at San Antonio
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TEACHING INTERESTS

Teaching mathematics and statistics courses from the low level to the high level for liberal arts colleges and universities and/or community college.

RESEARCH INTERESTS

Application of qualitative theory and bifurcation method of dynamical systems on models from the neuron science.

Bioinformatics: next generation sequencing data analysis and gene regulatory networks analysis.

Computational biophysics: Modeling mechanical phenomena arising in cellular processes, such as cell migration, cell division,intracellular cargo transportation. stochastic simulations of systems biology.

EDUCATION

Michigan State University, East Lansing, Michigan.
Ph.D., Applied Mathematics. 2009.
Thesis Title: Kinesin-Microtubule Interactions: Transport and Spindle Formation
Adviser: Peter W Bates

Kunming University of Science and Technology, Kunming, Yunnan. China
M.S. Applied Mathematics. 1998.

Hehai University, Nanjing, Jiangsu. China
B.E. Mechanical Engineering. 1991.

PROFESSIONAL EXPERIENCE

Assistant Professor of Instruction Aug. 2019 - Now
Department of Mathematics. University of Texas San Antonio.

Visiting Lecturer Aug. 2017 - June 2019
Department of Mathematics. Indiana University Bloomington.

Visiting Researcher Feb. 2016 - Jan. 2017
Department of Computer. Indiana University Bloomington.

Postdoctoral Researcher Feb. 2015 - Jan. 2016
Department of Biology. Indiana University Bloomington.

Instructor Mar. 2014 - Dec. 2014
Department of Mathematics. University of Californian, Irvine.

Assistant Specialist Dec. 2013 - Dec. 2014
Department of Physics and Astronomy. University of Californian, Irvine.

Research Fellow (Level II) Nov. 2012 - Nov. 2013.
Department of Neurobiology and Anatomy

University of Texas Health Science Center at Houston.

Postdoctoral Scholar Nov. 2009 - Aug. 2012.
Department of Physics and Astronomy. University of Californian, Irvine.

Research Assistant Aug. 1998 - Jun. 2001.
Institute of Applied Mathematics, Chinese Academy of Science, Beijing. China.

Civil Engineer Aug. 1991 - Jun. 1995.
The 17th China Metallurgical Construction Co. Ltd.. Ma Anshan, Anhui. China.

TEACHING EXPERIENCE

Assistant Professor of Instruction Aug. 2019 - Now
Department of Mathematics. The University of Texas at San Antonio.

- MAT 1023: College Algebra
- MAT 1093: PreCalculus
- MAT 1133: Calculus for Business
- MAT 1214: Calculus I.
- MAT 1224: Calculus II.

Visiting Lecturer Aug. 2018 - Jun. 2019 (Adjunct Lecturer Aug. 2017-May 2018)
Department of Mathematics. Indiana University Bloomington.

- MATH M-118: Finite Mathematics
- MATH V-118: Finite Mathematics(7 weeks), Graph Theory(4 weeks), and Game Theory(4 weeks)
- Brief Survey of Calculus 2.
- Calculus 3: Multivariate Calculus.
- Exploring Mathematical Ideas (Graph Theory, Group Theory, and Mathematical Models in Biology)
- Elementary Differential Equations.

Adjunct Lecturer Jan. 2017 - May. 2017
Division of Science. Indiana University-Purdue University Columbus.

- Brief Survey of Calculus 1.
- **Elementary Statistical Methods I**.

Instructor Mar. 2014 - Dec. 2014
Department of Mathematics. University of Californian, Irvine.

- Linear Algebra.
- Elementary Differential Equations.
- Numerical Analysis.
- Numerical Analysis Lab (Use MATLAB as the programming language).

Graduate Teaching Assistant Aug. 2002 - Aug. 2009
Department of Mathematics. Michigan State University.

- College Algebra.

- Finite Mathematics and Elements of College Algebra.
- Applied Calculus.
- Calculus(Recitation).
- Elementary Differential Equations(Recitation).

PROFESSIONAL SERVICE

Program Review Committee 2021 UTSA
FTT Promotion Committee 2021 UTSA

TUTORING EXPERIENCE

Graduate Teaching Assistant Aug. 2002 - Aug. 2009
Department of Mathematics. Michigan State University.

- Tutoring at Math Learning Center. 20 hours a week from 2002 to 2003. 2 hours a week after 2003.

Graduate Teaching Assistant Aug. 2001 - Jun. 2002
Department of Mathematics. Brigham Young University.

- Tutoring at Math Help Room. 20 hours a week from.

PUBLICATION

Michael Lynch, Matthew Ackerman, Ken Spitze, Zhiqiang Ye, Takahiro Maruki, **ZhiyuanJia**. Population Genomics of *Daphnia pulex*. Genetics. 206(1): 315-332, 2017.

Robert P. Erickson, **Zhiyuan Jia**, Steven P. Gross and Clare C. Yu. How molecular motors are arranged on a cargo is important for vesicular transport. PLoS Computational Biology. 7(5): e1002032. 2011. (Robert P. Erickson and Zhiyuan Jia are the co-first authors)

Peter W. Bates and **Zhiyuan Jia**. Neck-Linker Tension and the Locomotion of kinesin along Microtubules. Canadian Applied Mathematics Quarterly. Vol. 18, no 3: 229-252. 2010.

Zhiyuan Jia, Dmitry Karpeev, Igor S Aranson, Peter W Bates. Simulation studies of self-organization of microtubules and molecular motors, Physical Review E. 77, 051905, 2008.

Zhujun Jing, **Zhiyuan Jia**, Yinghui Gao. Research of the stability region in a power system. IEEE Trans. Circuits Systems I Fund. Theory and Application. 50, no. 2, 298-304, 2003.

Zhujun Jing, **Zhiyuan Jia**, Ruiqi Wang. Chaos behavior in the discrete BVP oscillator. Internat. J. Bifur. Chaos Appl. Sci. Engrg. 12, no. 3, 619-627, 2002.

Zhujun Jing, **Zhiyuan Jia**, Yu Chang. Chaos behavior in the discrete Fitzhugh nerve system. Sci. China Ser. A 44, no. 12, 1571-1578, 2001.

Zhiyuan Jia, Li Jibin. Existence of periodic solution of a neuronic equation. Annual of Differential Equations. 14, no.2. 196-203, 1998.

AWARDS AND HONORS

Research fellowship from Argonne National Laboratory. May 22 – August 14, 2006.

Full financial support for Mathematical Biology Graduate Summer School of the IAS/Park City Mathematics Institute 2005 Summer Session. June 26-July 16, 2005.

Dissertation completion fellowship, MSU Summer 2009.

TALKS AND CONTRIBUTED PRESENTATIONS

Simulation studies of cargo transportation hauling by multiple motors. Computational Biology Seminar, Institute of Human Genomics, University of California San Francisco. October 20, 2011.

Kinesin-Microtubule Interactions: Transport and Spindle Formation. Computational Biology Seminar, Cardiac Computation Laboratory, Medical School of University of California Los Angeles. June 17, 2009.

Monte Carlo simulations of vortex and aster patterns from the interactions of microtubules and molecular motors. Math-biology workshop between University of Michigan and Michigan State University. December 2, 2006.

Chaos behavior in the discrete Fitzhugh nerve system. Beijing International Conference on Dynamical Systems and Ordinary Differential Equations, Peking University. Beijing, China. June 18-23, 2001.

POSTERS

Measurement of Binding Rates of Kinesin onto Microtubules at the Single Molecule Level. Z. Jia, S. Tripathy, S. Gross, and C. Yu. Multiscale Methods and Validation in Medicine and Biology I: Biomechanics and Mechanobiology. San Francisco, California. February 13-14, 2012.

PROFESSIONAL SERVICE

Referee for *Bulletin of Mathematical Biology*

COMPUTER SKILLS

MATLAB, R, PYTHON, C++.