

VICKY CHUQIAO YANG

Engineering Sciences and Applied Mathematics, Northwestern University
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Education

PhD, Applied Mathematics	Expected August 2018
Northwestern University, Evanston, IL	
Status: All but dissertation	
Research focus: complex systems applied to large scale human behavior	
Advised by: Daniel M. Abrams	
Master of Science, Applied Mathematics	2014
Northwestern University	
Bachelor of Science, Mathematical Sciences	
Bachelor of Science, Physics	2013
Worcester Polytechnic Institute (WPI), Worcester, MA	
With high distinction	

Awards and Fellowships

- Best Interactive Data Visualization, Northwestern University Computational Research Day 2017
- The Red Sock Award for Best Poster Presentation, SIAM Conference on Applications of Dynamical Systems 2017
- SIAM Student Chapter Certificate of Recognition 2017
- Terminal Year Fellowship, Northwestern University 2017
- Travel Award, SIAM Conference on Applications of Dynamical Systems 2017
- Integrated Data Science (IDEAS) Traineeship, Northwestern University 2016
- Travel Award, Dynamics Days Conference 2015
- Walter Murphy Fellowship, Northwestern University 2013
- First Place, Student Paper Competition at Annual Microwave Power Symposium held by International Microwave Power Institute 2013
- Second Place, IEEE Student Paper Competition 2013
- Stephen Salisbury Prize for Outstanding Seniors, WPI 2013
- Provost's Major Qualifying Project Award, WPI 2013
- WPI's Putnam Competition Top Scorer 2013
- WPI Summer Undergraduate Research Fellowship 2011
- WPI Presidential Scholarship 2009

Journal Publications Under Review and in Preparation

- **V.C. Yang**, A.V. Papachristos, D.M. Abrams, "The origin of urban productivity scaling laws: mathematical model and new empirical evidence," under review. [Pre-print: arxiv.org/abs/1712.00476][General audience talk video: <https://youtu.be/Xs5ewFzNSYI>]
- **V.C. Yang**, D.M. Abrams, G. Kernell, A.E. Motter, "Why are US parties so polarize? A 'satisficing' model with empirical evidence," in preparation.

- L. Lee¹, S. Zhang¹, **V.C. Yang**, “Do two parties represent the US? Clustering analysis of US public ideology survey,” under revision with *SIAM Undergraduate Research Online*. [Pre-print: arxiv.org/abs/1710.09347]

Peer-reviewed Journal Publications

- B.S. Tilley, **V.C. Yang**, J.C. Baiense, and S. Evans, “Frequency-dependent thermal resistance of vertical U-tube geothermal heat exchangers”, *Journal of Engineering Mathematics* 102 131-150 (2017). DOI 10.1007/s10665-016-9881-7.
- E.M. Moon, **C. Yang**, and V.V. Yakovlev, “Microwave-induced temperature fields in cylindrical samples of graphite powder — experimental and modeling studies,” *International Journal of Heat and Mass Transfer*, vol. 87, No 8, pp. 359-368 (2015).
- **C. Yang** and V.V. Yakovlev, “An efficient empirical model for microwave-induced average temperature of liquid cylindrical reactants,” *Journal of Microwave Power and Electromagnetic Energy*, 47 (3), pp. 177-185 (2013).

Peer-reviewed Publications in Conference Proceedings

- E.M. Moon, **C. Yang**, M. Patel, H. He, and V.V. Yakovlev, Microwave-induced temperature fields in graphite powder heated in a waveguide reactor. In: *Microwave Symposium, IEEE Microwave Theory and Techniques Society International*, pp. 1-4, (2014).
- A.O. Holmes, **C. Yang**, M. Patel, K. Savaram, H. He, V.V. Yakovlev, and A.A. Zozulya, “Microwave-enabled production of solution- processable graphene: principles and techniques of macroscopic modeling,” In: *14th International AMPERE Conference on Microwave and High Frequency Heating*, Nottingham, UK (2013).
- A.O. Holmes, **C. Yang**, and V.V. Yakovlev, “Temperature modeling for process control in microwave-assisted chemistry,” In: *IEEE Microwave Theory and Techniques Society Microwave Symposium Digest*, Seattle, WA (2013).
- **C. Yang** and V.V. Yakovlev, “Computation of microwave-induced temperature in liquid cylindrical reactants,” In: *47th International Microwave Power Institute Microwave Power Symposium*, pp. 105-107, Providence, RI, (2013).
- **C. Yang** and V.V. Yakovlev, “A simple model of microwave-induced heat transfer in cylindrical reactants with strong convection,” In: *International Conference on Heating by Electromagnetic Sources*, Padua, Italy, (2013).

Other Reports and Articles

- **C. Yang**, Visualizing the US Congress, interactive visualization in d3, online at http://www.vcyang.com/vis_congress/ (2016).
- **C. Yang**, Macroscopic Modeling of Microwave-enabled production of solution-processable grapheme, Major Qualifying Project Report submitted to Worcester Polytechnic Institute (2013).
- **C. Yang**, Thermal Modeling of Wire-coil Insert, project report submitted to Argonne National Laboratory (2012).
- **C. Yang**, J. L. Skorinko, Does having a foreign accent affect men and women differently? Effect of foreign accent and gender on employment decisions and negotiations, project report submitted to Worcester Polytechnic Institute (2012).

¹Undergraduate students advised

Selected Presentations

- SIAM Conference on Applications of Dynamical Systems, Snowbird UT. Poster. May 2017
(The Red Sock Award for Best Poster Presentation)
- Chicago Area SIAM Student Conference, Evanston IL. Talk April 2017
- Seven Minutes of Science Symposium (science outreach), Evanston IL. Talk April 2017
(Video: <https://youtu.be/Xs5ewFzNSYI>)
- Northwestern University Undergraduate Math Society Lecture. Invited talk Nov 2016
- International Conference on Computational Social Science, Evanston IL. Poster June 2016
- Dynamics Days US, Durham NC. Poster Jan 2016
- IEEE Microwave Theory and Technique International Symposium, Tampa FL. Talk June 2014
- International Microwave Power Institute Symposium, Providence RI. Talk June 2013
(First Place, Student Paper Competition)
- IEEE Student Conference, Cambridge MA. Talk April 2013
(Second Place, IEEE Student Paper Competition)
- American Math. Society Student Conference, Boston MA. Talk April 2013
- Accelerator Physics Internship Presentation Aug 2012
Argonne National Laboratory and Fermilab. Talk
- New England Psychological Association Annual Conference, Worcester MA. Poster Oct 2012

Work Experiences

- Data Scientist Internship, Airbnb, San Francisco, CA** 2017
 - Used time series analysis of user behavior to infer user satisfaction
 - Identified main drivers in customer support that influence user satisfaction
- Lee Teng Internship in Accelerator Physics, Argonne National Laboratory, IL** 2012
 - Developed numerical model for a cooling mechanism in the Advanced Photon Source
 - Used spectral methods to solve for fluid dynamics and heat transfer problems
- Research Assistant in Social Psychology Inquiry Lab, WPI** 2011 - 2012
 - Designed and conducted human-subject experiments to study hiring biases against foreign accents

Leadership

- Chapter President, Society for Industrial and Applied Mathematics;** 2016 - 2017
Chair of Organizing Committee, Chicago Area SIAM Student Conference
Lead 9-person team from 3 universities to organize and raise funds for conference of 100 participants. Goal is to bridge the lack of communication among students using similar math techniques but are in different fields.
- Co-founder and President, NuTango Northwestern** 2015 - 2017
Found non-profit for inclusive community through Argentine Tango dance, focus on challenging gender norms in partner dancing. Define organization mission and execute decisions. Lead teams of 2-7 exec members and raise funds. Grow group from 2 to 450 members.
- Executive Board, Graduate Leadership and Advocacy Council, Northwestern** 2016 - 2017
- Chapter President, Pi Mu Epsilon, US Honorary National Math. Society** 2012 - 2013

Mentoring

Louisa Lee and Siyu Zhang (Northwestern undergraduate students) 2016
“Do the two parties represent the US? Clustering political ideology of the US public”. Publication submitted to *SIAM Undergraduate Research Online*.

Teaching

Teaching Certificate Program training, Northwestern University, 2016 - 2017
Teaching Assistant, Dept. of Mathematics, Northwestern University 2014 - 2015, 2016 - present
Argentine Tango Instructor, NuTango, Northwestern University 2016
Teaching Assistant, Dept. of Mathematics, WPI 2011 - 2013

Science Outreach

- Judge, Northwestern University High School Project Showcase 2017
- Speaker, Seven Minute of Science Symposium 2017
- Volunteer, Grand Prix Challenges, Evanston 5th Ward Middle School 2016

Workshops attended

- Integrated Data Science Traineeship 2016-2017
- Ready Set Go Science Communication Course, Northwestern University 2017
- Focus Summer School in Data Visualization, Northwestern University 2016
- ComSciCon-Chicago, Science Communication Workshop 2016
- Mathematical Problem in Industry Workshop, Newark DE 2015
- Graduate Students Mathematical Modeling Camp, Troy NY 2015
- US Particle Accelerator School, Grand Rapids MI 2012

Referee Service

- *Chaos: An Interdisciplinary Journal of Nonlinear Science* 2016, 2017

Computer and Programing Skills

Matlab, Python, Maple, Latex, SQL, d3, Mathematica, C, SPSS, bash, NEK5000, QuickWave 3D