

VICKY CHUQIAO YANG

Engineering Sciences and Applied Mathematics, Northwestern University
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Education

PhD, Engineering Sciences and Applied Mathematics Northwestern University, Evanston, IL Admitted into candidacy August 2015 Research focus: applied mathematics for social systems Advised by: Daniel M. Abrams	Expected June 2018
Master of Science, Engineering Sciences and Applied Mathematics Northwestern University, Evanston, IL	2014
Bachelor of Science, Mathematical Sciences Bachelor of Science, Physics Worcester Polytechnic Institute (WPI), Worcester, MA With high distinction	2013

Awards and Fellowships

- The Red Sock Award for Best Poster Presentation,
SIAM Conference on Applications of Dynamical Systems 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

Publications in Journals

- V.C. Yang, A.V. Papachristos, D.M. Abrams, "The origin of urban productivity scaling laws: mathematical model and new empirical evidence from crimes," *under review*.
- V.C. Yang, D.M. Abrams, G. Kernell, A.E. Motter, "A bounded rationality model for political elections with empirical evidence," *in preparation*.

- 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).
- 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).

Publications in Conference Proceedings

- 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 Intern. AMPERE Conf. 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 MTT-S Intern. Microwave Symp. Dig., Seattle, WA, 2013.
- C. Yang and V.V. Yakovlev, “Computation of microwave-induced temperature in liquid cylindrical reactants,” In: 47th IMPI’s Microwave Power Symp., Providence, RI, 2013.
- C. Yang and V.V. Yakovlev, “A simple model of microwave-induced heat transfer in cylindrical reactants with strong convection,” In: Intern. Conf. on Heating by Electromagnetic Sources, Padua, Italy, 2013.

Talks and Poster Presentations

- *Dynamics of political elections: a “satisficing” model and empirical data*
Poster presentation at SIAM Conference on Applications of Dynamical Systems, Snowbird UT, May 2017 (Winner of the Red Sock Award for Best Poster Presentation)
Talk at Chicago Area SIAM Student Conference, Northwestern University, IL, April 2017
- *Seven Minutes of Science Symposium*. [Video: <https://youtu.be/Xs5ewFzNSYI>]
Northwestern University, April 2017
- *The origin of scaling laws in urban outputs*
Poster presentation at Northwestern University Computational Research Day, Evanston IL, April 2017
Dynamics Days US, Durham NC, Jan 2016
International Conference on Computational Social Science, Evanston IL, June 2016
- *Why bigger cities generate more inventions, crimes, and disease: a simple mathematical model*
Talk at Chicago Area SIAM Student Conference, Chicago IL, April 2015
- *Microwave-induced temperature fields in graphite powder heated in a waveguide reactor*
Talk at IEEE MTT-S International Microwave Symposium, Tampa FL, June 2014
- *Computation of microwave-induced temperature in liquid cylindrical reactants’*
Talk at 47th IMPI’s Microwave Power Symposium, Providence RI, June 2013
(Winner of First Place, MPI Student Paper Competition)
- *Microwave-induced heat transfer in cylindrical reactants with strong convection: a simple mathematical model*
Talk at IEEE Region 1 Student Conference, Cambridge MA, April 2013
(Winner of Second Place, IEEE Student Paper Competition)

- *A simple heat transfer model for reactors in microwave-assisted chemistry*
Talk at American Math. Society Student Conference, Boston MA, April 2013
- *Thermal and fluid dynamics modeling of wire-coil insert*
Talk at New York State Regional Grad. Math. Conference, Syracuse NY, April, 2013
Talk at Argonne National Laboratory and Fermilab, Lemont and Batavia IL, Aug 2012.
- *Does having a foreign accent affect men and women differently? Effect of foreign accent and gender on employment decision and negotiations*
Poster presentation at New England Psychological Association Annual Conference, Worcester MA, Oct 2012

Leadership

President	2016 - 2017
Society for Industrial and Applied Mathematics (SIAM), Northwestern Chapter	
Head Organizer	2017
Chicago Area SIAM Student Conference	
Co-founder and President	2015 - 2017
NuTango: Northwestern University Argentine Tango Club	
Executive Board	2016 - 2017
Graduate Leadership and Advocacy Council, Northwestern University	
President	2012 - 2013
Pi Mu Epsilon, US Honorary National Mathematics Society, WPI Chapter	

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 in preparation.	

Teaching

Training in Teaching Certificate Program, 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

- 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

Other projects and work experience

Lee Teng Internship, Argonne National Laboratory, IL 2012

- Worked in the engineering support division of Advanced Photon Source, particle accelerator at Argonne, to develop numerical model for a cooling mechanism in the accelerator.
- Used spectral method and NEK5000 solver in fluid dynamics problems. Results were validated by experiments.
- Submitted project report to Argonne National Laboratory, presented at Argonne National Laboratory and FermiLab.

Social Psychology Research Project, Worcester Polytechnic Institute 2011 - 2012

- Studied the effect of international accent on hiring decisions
- Designed and conduct experiment
- Performed hypothesis testing using data collected

Computer and Programing Skills

Matlab, Python, Maple, Latex, d3, Mathematica, C, SPSS, bash commands, NEK5000, QuickWave 3D, SAS, Windows OS, Linux OS