Stephanie Wang

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https://stephaniewang.page/

Education

2014-2020 **Ph.D. in Mathematics**, *UCLA*, Dissertation advisor: Prof. Joseph Teran.

2014-2016 **M.S. in Mathematics**, *UCLA*.

2009-2013 **B.S. in Mathematics**, *National Taiwan University*, *magna cum laude*.

Research Experience

2020-present **Postdoc – under Prof. Albert Chern**, *UCSD*, San Diego, CA.
Geometry processing, physical simulation, inverse rendering, and geometry learning with an emphasis in mathematical theory. Mentored students: Mohammad Sina Nabizadeh (CSE PhD student), Shiyang Jia (CSE PhD student), Chad McKell (Music PhD student).

2019-2020 **Ph.D. Study – under Prof. Wilfrid Gangbo**, *UCLA*, Los Angeles, CA.
Regularity theory for minimizers of polyconvex functionals related to Navier-Stokes equation.

2019 summer **Summer Exchange – under Prof. Johan Gaume**, *EPFL*, Lausanne, Switzerland.
Physical simulation, post-processing, and data analysis of snow and tire interaction using C++ and Python programming; general consultation at the Snow and Avalanche Simulation Laboratory.

2016-2019 **Ph.D. Study – under Prof. Joseph Teran**, *UCLA*, Los Angeles, CA.
Physical simulation of various materials using C++ programming, convex and nonconvex optimizations, numerical PDEs, numerical linear algebra, and multithreading.

2013-2014 **Research Assistantship – under Prof. Wen-Wei Lin**, *NCTU*, Hsinchu, Taiwan.
Generalized eigenvalue problems using MATLAB programming.

Industry Experience

2018 summer **Technology Intern**, *Walt Disney Animation Studio*, Burbank, CA.
R&D for pioneering simulation technology in animated feature film, teaming with FX artists, numerical analysis, continuum mechanics, C++, HDK.

Teaching Experience

2020 **Assistant Adjunct Professor**, *UCLA Math Dept*, Los Angeles, CA (virtual).
Taught remote classes for upper and lower division undergratuate courses: Machine Learning (Math156) and Calculus of Several Variables (Math32A).

2019 spring **Graduate Student Instructor**, *UCLA Math Dept*, Los Angeles, CA.
Taught course: Linear Algebra and Applications (Math33A).

2015-2020 **Teaching Assistant**, *UCLA Math Dept*, Los Angeles, CA.
Led discussion sessions and graded homework/exams for 11 undergraduate and graduate level courses: linear algebra and introduction to mathematical proofs (Math 115A), undergrad- and grad-level numerical methods (Math 151B, 269A), introductory, intermediate, and advanced C++ programming (PIC 10A, 10B, 10C).

Awards and Prizes

May 2022 **Rising Stars in Computer Graphics Research**, *WiGRAPH*.

Jul 2019 **Best Paper Award**, *ACM SIGGRAPH/Eurographics Symposium on Computer Animation*.

Sep 2014 **Eugene V. Cota-Robles Fellowship**, *UCLA*.

Jun 2013 **Dean's Award, College of Science**, *National Taiwan University*.

Aug 2012 **Bronze Medal, Applied and Computational Mathematics**, *S.T. Yau College Student Mathematics Contest*.

Preprints

2022 **Covector Fluids**
Mohammad Sina Nabizadeh, Stephanie Wang, Ravi Ramamoorthi, Albert Chern
SIGGRAPH 2022 (accepted) (project page)

2022 **DeepCurrents: Learning Implicit Representations of Shapes with Boundaries**
David Palmer, Dmitriy Smirnov, Stephanie Wang, Albert Chern, Justin Solomon
CVPR 2022 (accepted) (arXiv)

Publications

2022 **Role Detection in Bicycle-Sharing Networks Using Multilayer Stochastic Block Models**
Jane Carlen, Jaume de Dios Pont, Cassidy Mentus, Shyr-Shea Chang, Stephanie Wang, Mason A. Porter
Network Science (Cambridge Core)

2021 **Computing minimal surfaces with differential forms**
Stephanie Wang and Albert Chern
ACM Transactions on Graphics (SIGGRAPH 2021) (ACM Digital Library).

2021 **Computational micromechanics of porous brittle solids**
Lars Blatny, Henning Löwe, Stephanie Wang, Johan Gaume
Computers and Geotechnics (ScienceDirect)

2020 **A Material Point Method for Elastoplasticity with Ductile Fracture and Frictional Contact**
Stephanie Wang
UCLA Doctoral Dissertation (ProQuest)

2019 **A thermomechanical material point method for baking and cooking**
Mengyuan Ding, Xuchen Han, Stephanie Wang, Theodore F. Gast, Joseph M. Teran
ACM Transactions on Graphics (SIGGRAPH Asia 2019) (ACM Digital Library)

2019 **A Hybrid Material Point Method for Frictional Contact with Diverse Materials**
Xuchen Han, Theodore F. Gast, Qi Guo, Stephanie Wang, Chenfanfi Jiang, Joseph M. Teran
Proceedings of the ACM on Computer Graphics and Interactive Techniques (SCA 2019) (ACM Digital Library)

2019 **Simulation and Visualization of Ductile Fracture with the Material Point Method**
Stephanie Wang, Mengyuan Ding, Theodore F. Gast, Leyi Zhu, Steven Gagniere, Chenfanfu Jiang, Joseph M. Teran
Proceedings of the ACM on Computer Graphics and Interactive Techniques (SCA 2019 Best Paper) (ACM Digital Library)

Invited talks

Conferences and workshops

Sep 2021 **Geometry Workshop in Obergurgl**, Obergurgl, Austria.
Aug 2021 **SIGGRAPH**, (virtual).
Aug 2019 **SCA**, Los Angeles, CA.

Seminars at research institutions

Feb 2022 **NCSU**, Raleigh, NC (virtual).
Nov 2021 **MIT**, Cambridge, MA.
Nov 2021 **Autodesk**, (virtual).

Nov 2021 **Online Seminar Geometric Analysis**, (virtual).
Oct 2021 **Toronto Geometry Colloquium**, Toronto, ON (virtual).
Apr 2021 **UCSD (CSE)**, San Diego, CA (virtual).
Jan 2021 **UCSD (CCoM)**, San Diego, CA (virtual).
Dec 2020 **CMU**, Pittsburgh, PA (virtual).
May 2020 **GAMES Webinar**, (virtual).
Nov 2019 **College of the Holy Cross**, Worcester, MA (virtual).
Sep 2019 **Inria Grenoble-Rhône-Alpes**, Grenoble, France.
Aug 2019 **ETH Zürich**, Zürich, Switzerland.

PhD student seminars

Aug 2019 **EPFL**, Lausanne, Switzerland.
Nov 2018 **UCLA**, Los Angeles, CA.

Services

2021-present **External reviewer**, *ACM SIGGRAPH, SIGGRAPH Asia, Eurographics.*
Reviewed technical papers in areas including geometry processing, physical simulation, and scientific computing.

2021 **Research project mentor**, *Summer Geometry Institute.*
Designed a research project and advised undergraduate fellows on minimal surfaces using both Lagrangian and Eulerian representations.

2018-2020 **President**, *Mathematics Graduate Student Organization, UCLA.*
Coordinated social events and PhD student seminars and liaised with faculties and administration for math graduate students.

2017-2020 **Math Dept Representative**, *Mathematical and Physical Sciences Student Council, UCLA.*
Advocated for student rights in campus-level organizations and organized cross-departmental social events.

2015-2020 **Volunteer**, *AWiSE STEM Day.*
Presented interactive math booth in annual science fair designated for middle school girls.

2017-2020 **Volunteer**, *Explore Your Universe, UCLA.*
Presented interactive math booth in annual science fair accessible for all local communities.

2016-2018 **Chief Organizer**, *Women in Math, UCLA.*
Organized social and volunteering events and generally advocated for women in math dept.

2017 **Creator**, *Women in Math Mentorship Program, UCLA.*
Secured funding and coordinated regular mixers for undergraduate and graduate fellows to increase connection, awareness, and mentorship.

2016-2018 **Fellow Mentor**, *California Teach, UCLA.*
Mentored Math and Statistics undergraduate students from underrepresented demographics and gave academic and career advice.

2012-2013 **Vice President**, *Lambda Club, National Taiwan University.*
Organized events and grew the community from 3 people to 30+ during my service.

Skills

Languages English and Mandarin Chinese - bilingual proficiency.
Programming C++, lua, MATLAB, vim, bash, zsh, LaTeX
Tools Houdini, HDK, git, gdb, valgrind, Eigen, tbb, CVX
Mathematics Optimization, differential geometry, numerical and theoretical PDEs, scientific computing, numerical linear algebra.
Hobbies Rock climbing, hiking, cooking