

Stephanie Wang

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Education

- 2014-2020 **Ph.D. in Mathematics**, *UCLA*, Dissertation advisor: 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 pioneer 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 undergraduate 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

- 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

- Nov 2021 **DeepCurrents: Learning Implicit Representations of Shapes with Boundaries**
David Palmer, Dmitriy Smirnov, [Stephanie Wang](#), Albert Chern, Justin Solomon ([arXiv](#))
- Aug 2019 **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 ([arXiv](#))

Publications

- 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](#), Chenfanfeng 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, Chenfanfeng 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, L^AT_EX

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