

# Stephanie Wang

## Education

**Ph.D. and M.S. in Mathematics**, *UCLA*, Eugene V. Cota-Robles Fellow. **2014-2020**  
**B.S. in Mathematics**, *National Taiwan University*, *magna cum laude*. **2009-2013**

## Positions

### Research

**Postdoc – with Prof. Albert Chern**, *UCSD*, San Diego, CA. **2020-present**  
Geometry processing, geometric deep learning, and physical simulation using mathematical insights from geometric measure theory, exterior calculus, partial differential equations, and optimization theory. Developing in Houdini and Python. Mentored PhD students: [Mohammad Sina Nabizadeh](#), [Shiyang Jia](#), [Chad McKell](#), [Hang Yin](#).

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

**Exchange Study – with Prof. Johan Gaume**, *EPFL*, Lausanne, Switzerland. **2019 summer**  
Simulations and data analysis of snow and tire interaction, avalanche release, and snow micro-structure.

**Ph.D Study – with Prof. Joseph Teran**, *UCLA*, Los Angeles, CA. **2016-2019**  
Physics-based simulations of various materials with Material Point Method and Finite Element Method, using continuum mechanics, convex and nonconvex optimization technique, numerical analysis, parallel computing, developing in C++ and Houdini.

### Industry

**Tech Intern**, *Walt Disney Animation Studio*, Burbank, CA. **2018 summer**  
R&D for pioneering simulation technology in animated feature films, teaming with VFX artists and developing in C++ and HDK.

### Teaching

**Assistant Adjunct Professor / Instructor**, *UCLA Math Dept*, Los Angeles, CA. **2019-2020**  
Taught three courses: linear algebra, machine learning (remote), and multivariable calculus (remote).

**Teaching Assistant**, *UCLA Math Dept*, Los Angeles, CA. **2015-2020**  
Taught 11 courses: linear algebra and intro to mathematical proofs, undergrad and grad level numerical methods, intro, intermediate, and advanced C++ programming.

## Skills

**Programming:** C++ (Eigen, tbb), Python (PyTorch, SciPy), lua, MATLAB (CVX), L<sup>A</sup>T<sub>E</sub>X, Vim, git, zsh, Houdini VEX

**Math:** Optimization, differential geometry, numerical and theoretical PDEs, scientific computing

**Languages:** English and Mandarin Chinese - bilingual proficiency

**Technical communication:** 9 papers at top journals and 17 talks at top conferences / institutes.

## Selected Publications

Fluid Cohomology. Hang Yin, Mohammad Sina Nabizadeh, Baichuan Wu, [Stephanie Wang](#), and Albert Chern. SIGGRAPH 2023 (accepted.)

[Covector fluids](#). Mohammad Sina Nabizadeh, [Stephanie Wang](#), Ravi Ramamoorthi, and Albert Chern. SIGGRAPH 2022.

[DeepCurrents: Learning implicit representations of shapes with boundaries](#). David Palmer, Dmitriy Smirnov, [Stephanie Wang](#), Albert Chern, and Justin Solomon. CVPR 2022.

[Computing minimal surfaces with differential forms](#). [Stephanie Wang](#) and Albert Chern. SIGGRAPH 2021.

[A thermomechanical material point method for baking and cooking](#). Mengyuan Ding, Xuchen Han, [Stephanie Wang](#), Theodore F. Gast, and Joseph M. Teran. SIGGRAPH Asia 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, and Joseph M. Teran. SCA 2019 (**Best Paper Award**).