

# 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**

## Experience

### Research

**Postdoc – with Prof. Albert Chern**, *UCSD*, San Diego, CA. **2020-present**

Geometric deep learning, geometry optimization and physics-based simulation of various materials (solids, fluids, waves, cloth, hair, frictional contact, plasticity, fracture, *etc.*). Developing using Houdini and Python. Mentored students: [Mohammad Sina Nabizadeh](#), [Shiyang Jia](#), [Chad McKell](#), [Hang Yin](#), [Baichuan Wu](#).

**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**

Simulating snow and tire interaction using physics-based simulation, in collaboration with Michelin tires.

**Ph.D Study – with Prof. Joseph Teran**, *UCLA*, Los Angeles, CA. **2016-2019**

Physics-based simulation of various materials (fracture, cloth, hair, deformable body, *etc.*) using Material Point Method and Finite Element Method. Developing and maintaining large C++ library with high-performance numerical methods and parallel computing.

### 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 Houdini 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**

TA-ed courses: linear algebra, numerical methods (intro, intermediate, and advanced), C++ programming (intro, intermediate, and advanced).

## Skills

**Programming:** C++ (Eigen, tbb, gdb, valgrind), Python (PyTorch, SciPy), MATLAB (CVX),  $\LaTeX$ , Vim, git, zsh, Houdini

**Math:** Optimization, differential geometry, solid and fluid dynamics, scientific computing

**Languages:** English and Mandarin Chinese (bilingual)

**Technical communication:** 11 papers in top journals and 18 talks at top conferences / institutes.

## Selected Publications

[Exterior Calculus in Graphics: Course Notes for a SIGGRAPH 2023 Course](#). [Stephanie Wang](#), [Mohammad Sina Nabizadeh](#), [Albert Chern](#). SIGGRAPH 2023.

[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](#). ACM ToG (SIGGRAPH 2021).

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

...and 6 more papers published in top journals in computer graphics and other scientific fields.