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stephaniewang.page

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 optimization and physical simulation using mathematical insights from geometric measure theory, exterior calculus, partial differential equations, and optimization theory. Developing in 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**
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**
TA-ed 11 courses: linear algebra and intro to mathematical proofs, undergrad and grad level numerical methods, 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 proficiency

Technical communitation: 10 papers at 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 in top journals in computer graphics and other scientific fields.

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