# Yutian Tao

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## EDUCATION

***University of Wisconsin Madison - Madison, USA***                    ***Sep.2018-Present***
Ph.D. student in Computer Sciences advised by Prof. Eftychios Sifakis

***Nanjing University - Nanjing, China***                    ***Sep.2014-Sep.2018***
B.S. in Computer Science and Technology (**National Elite Program**)
Major GPA: 4.6525/5          **Rank: 1/41**

***University of Waterloo - Waterloo, Canada***                    ***Sep.2017-Apr.2018***
Exchange student

## WORK EXPERIENCE

***Research Intern at Internet Graphics group in Microsoft Research Asia***          ***Jul.2020-Dec.2020***

- Reproduced incremental potential contact (IPC) algorithm in PhysBAM
- Investigated possible optimization methods to accelerate IPC

## RESEARCH EXPERIENCE

***Scalable Solvers for Stokes Equation on Collocated Grids***          ***Jun.2021-Present***

- Proposed a new multigrid-preconditioned solver for Stokes equation on collocated grids
- Can be applied in topology optimization problem to accelerate the speed of each iteration

***Optimized Processing of Localized Collisions in Projective Dynamics***          ***Jan.2019-May.2021***

- Proposed a new and distinctive approach to reconciling collision processing with the philosophy of Projective Dynamics
- Supported simulation around 500K tetrahedron with sub-interactive speed (3 simulation frames per second)
- Applied in surgery-related paper such as "A Computer Based Facial Flaps Simulator Using Projective Dynamics" and "Long-Term Results of the Murawski Unilateral Cleft Lip Repair"

## PUBLICATIONS

- Wang, Q., **Tao, Y.**, Brandt, E., Cutting, C., and Sifakis, E. 2021. Optimized Processing of Localized Collisions in Projective Dynamics. Computer Graphics Forum 40, 6, 382–393.
- Wang, Q., **Tao, Y.**, Cutting, C., and Sifakis, E. 2022. A computer based facial flaps simulator using projective dynamics. Computer Methods and Programs in Biomedicine 218, 106730.
- Murawski, E.L., Gawrych, E.H., Cutting, C.B., Sifakis, E.D., Wang, Q., and **Tao, Y.** 2022. Long-Term Results of the Murawski Unilateral Cleft Lip Repair. Plastic and Reconstructive Surgery 149, 2, 254E-260E.

## SKILLS

**Languages** Chinese (native language), English (fluent)
**Programming** C++, C, CUDA, MATLAB, Python, OpenMP, Intel Intrinsics, Taichi
**Softwares** Blender, PARDISO, Adobe Illustrator
**Education** Fluid Dynamics, Continuum Mechanics, Finite Element Method, Multigrid Method, Nonlinear Optimization

## SELECTED HONOR & AWARDS

- National Scholarship, Ministry of Education, 2015 (awarded to 3 out of the class of 180 students)