Yitong Deng / 邓宜桐

HB 6211, Dartmouth College, Hanover, NH 03755
✉ yitong.deng.gr@dartmouth.edu • yitongdeng.github.io

Education

Dartmouth College — **Hanover, New Hampshire, U.S.**
M.S. in Computer Science — *2021 - 2022*
Advisor: Prof. Bo Zhu

Colby College — **Waterville, Maine, U.S.**
B.A. in Computer Science with Music minor, GPA: 4.03 — *2016 - 2020*
Advisor: Prof. Bruce Maxwell

Peer-Reviewed Papers

Yitong Deng, Hong-Xing Yu, Jiajun Wu, Bo Zhu. *Learning Vortex Dynamics for Fluid Inference and Prediction*. Accepted to: **International Conference on Learning Representations (ICLR) 2023**.

Yitong Deng, Mengdi Wang, Xiangxin Kong, Shiying Xiong, Zangyueyang Xian, and Bo Zhu. *A Moving Eulerian-Lagrangian Particle Method for Thin Film and Foam Simulation*. In: ACM Transactions on Graphics 41.4, July 2022 (Proceedings of **SIGGRAPH 2022**).

Yitong Deng, Yaorui Zhang, Xingzhe He, Shuqi Yang, Yunjin Tong, Michael Zhang, Daniel M. DiPietro, and Bo Zhu. *Soft Multicopter Control using Neural Dynamics Identification*. Presented at: **Conference on Robot Learning (CoRL) 2020**.

Mengdi Wang, **Yitong Deng**, Xiangxin Kong, Aditya H. Prasad, Shiying Xiong, Bo Zhu. *Thin-Film Smoothed Particle Hydrodynamics Fluid*. In: ACM Transactions on Graphics 40.4, July 2021 (Proceedings of **SIGGRAPH 2021**).

Preprints

Qiqin Le, **Yitong Deng**, Bo Zhu, Tao Du. *Second-Order Finite Elements for Cloth and Shells*. Submitted to: SIGGRAPH 2023.

Shiying Xiong, Xingzhe He, Yunjin Tong, **Yitong Deng**, Bo Zhu. *Neural Vortex Method: from Finite Lagrangian Particles to Infinite Dimensional Eulerian Dynamics*. Under revision at: Computers & Fluids.

Theses

Yitong Deng. *Data-Driven Automatic Dance Improvisation in 2D*. Colby College Honors Theses 2020.

Research Experience

Stanford University, SVL — **California, U.S.**
Visiting Student Researcher, advised by Prof. Jiajun Wu — *Summer 2022*

- Devise data-driven, neural vortex representations to uncover fluid dynamics from single videos.
- Extend physics-informed neural networks with learnable simulators to enable future extrapolation.

Dartmouth College, VCL — **New Hampshire, U.S.**
Research Assistant, advised by Prof. Bo Zhu — *2018-2019, 2021 - present*

- Devise particle-based algorithms to simulate non-manifold fluid thin films, *e.g.*, bubbles and foams.
- Devise control policies for deformable multicopters using physics-embedded neural networks.

Beijing Film Academy, AICFVE — **Beijing, China**
Research Assistant, advised by Dr. Bin Wang — *Summer 2019*

- Devise latent-space reinforcement learning methods for humanoid control that facilitate policy retargeting.

The Music Lab at Harvard — **Massachusetts, U.S.**
Contributor, advised by Stats Atwood — *Summer 2018*

- Catalog and analyze discographical data of indigenous music for the Natural History of Song project.

Colby College, CS Department **Maine, U.S.**
Research Assistant, advised by Prof. Bruce Maxwell *Summer 2018*

- Use convolutional neural networks to identify fish species for aquatic ecosystem monitoring.

Conference Presentations

A Moving Eulerian-Lagrangian Particle Method for Thin Film and Foam Simulation
SIGGRAPH Technical Papers Presentation *August 2022*

Thin-Film Smoothed Particle Hydrodynamics Fluid
SIGGRAPH Technical Papers Presentation *August 2021*

Soft Multicopter Control Using Neural Dynamics Identification
CoRL Spotlight Talk *November 2020*

Colloquium Presentations

Neural Vortices
Intern Presentation, Stanford University CogAI Group *August 2022*

On Bubble Simulation with the MELP Method
Invited Talk, Peking University Visual and Computing Lab *July 2022*

Honors & Awards

- Citation in COSC274: Machine Learning & Statistical Data Analysis (Dartmouth) *June 2021*
- Distinction in Computer Science (Colby) *June 2020*
- Honors in Computer Science (Colby) *June 2020*
- *summa cum laude* (Colby) *June 2020*
- Phi Beta Kappa (Colby) *May 2019*
- Citation in COSC76: Artificial Intelligence (Dartmouth) *May 2019*
- Neukom Scholar (Dartmouth) *November 2018*
- Annual Concerto Competition Winner (Colby) *2018, 2020*
- Music Department Performance Prize (Colby) *2018, 2020*
- Dean's List (Colby) *2017, 2018, 2020*

Teaching Experience

Foundations of Applied Computer Science (COSC70) **Dartmouth College**
Teaching Assistant *Spring 2021*

- Host TA sessions and grade projects on linear algebra, probability, and approximation algorithms.

Data Structures and Algorithms (CS231) **Colby College**
Teaching Assistant *Fall 2017*

- Grade student projects that implement data structures such as stacks, graphs, and hash tables.

Media Coverage

Making Complex Physics Pop On Screen
Dartmouth *May 2022*

Simulating Bursting Soap Bubbles!
Two Minute Papers *August 2021*

Solo Pianist Plays Every Single Orchestral Line in Painstakingly Brilliant Chopin Concerto
Classic FM *April 2021*

A MIDI Orchestra of One's Own Making
Colby News *March 2021*

Top 10 Videos of 2020
Colby News *December 2020*