Yue Sun

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EDUCATION

Harvard University **Cambridge, MA**
Ph.D. Student in Applied Mathematics, Advisor: Professor Christopher H. Rycroft *09/2020 – present*

- **Research Interests:** computational fluid dynamics, scientific computing, computer graphics, physics-based animation

M.E. in Computational Science and Engineering *09/2018 – 05/2020*

- **Honors:** Special Distinction in Teaching, 2019-2020 Institute for Applied Computational Science Student Scholarship

New York University Shanghai **Shanghai, China**
B.S. in Mathematics (magna cum laude), minors in Interactive Media Arts, Urban Design & Architecture Studies *08/2014 – 05/2018*

WORK EXPERIENCE

Activision/Raven Software **Middleton, WI**
Technical Animation Intern *06/2020 – 08/2020*

- Continued the support of dynamic bones system in the studio latest release game engine: authored new additions to create custom collision groups and full-featured collision shapes; improved and refactored the collision detection math library.
- Developed supplementary UI updates in the studio Maya tool to simplify the dynamic bones setup: built a new widget to enable direct edits of simulation attributes; added preview and selection options for new collision shapes and groups.

Technical Animation Intern, Credit: "Call of Duty: Modern Warfare" *05/2019 – 08/2019*

- Initialized the integration of dynamic bones system into the studio AAA franchise game engine: researched/implemented new numerical methods; benchmarked in-game performance; and created a repository of game assets for future projects.
- Developed a mirroring module to the existing pose tool to allow the animators to mirror or copy a pose from one side of the character to the other, and to automatically mirror animation sequences based on motion captured data.

New York University Stern School of Business **New York, NY**
Video Production Intern *09/2016 – 06/2017*

- Filmed/edited four online EMBA courses, and created graphics for course promotional/introductory videos.
- Assisted live streaming studio production work, and produced video recaps of Stern events and first-year cohort program.

RESEARCH EXPERIENCE

Fluid–Structure Interaction using the Lattice Boltzmann Method and Reference Map Technique **Cambridge, MA**
Master's Thesis, Advisor: Professor Christopher H. Rycroft *01/2019 – 05/2020*

- Combined two fixed grid methods to develop a pure Eulerian description of inter-phase coupling between fluid and solid.
- The new hybrid method showed stability and robustness in simulating rigid and deformable solid extreme motion in fluid.

Numerical Simulation of Rayleigh-Bénard Convection **Cambridge, MA**
Class Project for Harvard AC290r: Extreme Computing *02/2019 – 05/2019*

- Simulated a 2D turbulent heat convection using a parallelized finite element fluid solver on supercomputing clusters.
- Postprocessed 200GB parallelized simulation data and visualized physical fields to bridge Impressionism and turbulence.

LEADERSHIP EXPERIENCE

Flame Dialogues **Hong Kong / Shanghai / Beijing**
Co-Founder *01/2015 – present*

- Co-founded a social media platform to publish interview articles about interesting people and their stories at universities.
- Led the NYU Shanghai team, and collaborated with seven other universities (27,000+ followers as of July 2019).

The Violet Lights Project **New York, NY**
Lead Animator in "From Shanghai with Love" section *07/2016 – 09/2016*

- Led the production of a projection mapping animation to introduce NYU Shanghai and highlight NYU global networks.
- Projected the animation onto NYU Stern building façade during NYU 16th President Inauguration Celebration Week.

TEACHING EXPERIENCE

Harvard University School of Engineering and Applied Sciences **Cambridge, MA**
Head Teaching Fellow, Course: ES123 Introduction to Fluid Mechanics and Transport Processes *01/2020 – 05/2020*

- The course introduced basics of steady and unsteady thermal conduction and mass diffusion, statics and dynamics fluids.
- Held weekly sections and office hours reviewing lecture contents, advised group projects, and graded problem sets.
- Managed course logistics, and assisted the remote teaching transition and online learning setup amid COVID-19.

Teaching Fellow, Course: AM205 Advanced Scientific Computing: Numerical Methods *09/2019 – 12/2019*

- The course introduced mathematical foundations of numerical algorithms and studies their computational applications.
- Held weekly office hours clarifying and communicating course materials to students, and graded assignments.

SKILLS

- **Languages:** (proficient in) C++, Python, LaTeX, (familiar with) MATLAB, JavaScript, C#, Processing
- **Applications:** Maya, Unity3D, Arduino, Adobe After Effects / Premiere / Photoshop
- **Technologies:** OpenMP, Maya API, OpenGL, POV-Ray, gnuplot, p5.js, Git, Perforce, PySide, PS4 Dev Tools