

Yue Sun

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EDUCATION

Harvard University	Cambridge, MA
<i>Ph.D. Student in Applied Mathematics, Advisor: Professor Christopher H. Rycroft</i>	<i>09/2020 – present</i>
• Research Interests: computational fluid dynamics, scientific computing, computer graphics, physics-based animation	
<i>M.E. in Computational Science and Engineering</i>	<i>09/2018 – 05/2020</i>
• Honors: Special Distinction in Teaching, 2019-2020 Institute for Applied Computational Science Student Scholarship	
New York University Shanghai	Shanghai, China
<i>B.S. in Mathematics (magna cum laude), minors in Interactive Media Arts, Urban Design & Architecture Studies</i>	<i>08/2014 – 05/2018</i>

WORK EXPERIENCE

Activision/Raven Software	Middleton, WI
<i>Technical Animation Intern, Game Credit: “Call of Duty: Black Ops Cold War”</i>	<i>06/2020 – 08/2020</i>
• 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.	
<i>Technical Animation Intern, Game Credit: “Call of Duty: Modern Warfare”</i>	<i>05/2019 – 08/2019</i>
• 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.	

RESEARCH EXPERIENCE

Settling down: simulations of soft immersed rods with the reference map technique	Cambridge, MA
<i>Video Entry in 74th APS DFD Gallery of Fluid Motion, Collaborators: Luna Lin, Nick Derr, Chris Rycroft</i>	<i>08/2021 – 10/2021</i>
• Built a pipeline to batch import simulation binary data to animation software and render photorealistic simulation movies.	
• Created a video to introduce a numerical method for efficient simulations of many-soft-body interactions in fluid.	
A lattice Boltzmann implementation of the reference map technique	Cambridge, MA
<i>Master’s Thesis, Advisor: Professor Christopher H. Rycroft</i>	<i>01/2019 – 05/2020</i>
• 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.	

LEADERSHIP EXPERIENCE

Flame Dialogues	Hong Kong / Shanghai / Beijing
<i>Co-Founder</i>	<i>01/2015 – present</i>
• 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
<i>Lead Animator in “From Shanghai with Love” Section</i>	<i>07/2016 – 09/2016</i>
• 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 16 th President Inauguration Celebration Week.	

TEACHING EXPERIENCE

Harvard University School of Engineering and Applied Sciences	Cambridge, MA
<i>Teaching Fellow, Course: AM205 Advanced Scientific Computing: Numerical Methods</i>	<i>09/2021 – present</i>
• The course introduces mathematical foundations of numerical algorithms and studies their computational applications.	
• Designs and leads workshops on multithreading, data processing technique, discontinuity simulation, and fluid instability.	
• Holds weekly office hours clarifying and communicating course materials to students, and grades assignments.	
<i>Head Teaching Fellow, Course: ES123 Introduction to Fluid Mechanics and Transport Processes</i>	<i>01/2020 – 05/2020</i>
• 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.	
<i>Teaching Fellow, Course: AM205 Advanced Scientific Computing: Numerical Methods</i>	<i>09/2019 – 12/2019</i>

SKILLS

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