(901) 501-6320

Ante Qu

ante.qu.cs@gmail.com
www.antequ.net

Education

Stanford University — Stanford, CA
Ph.D. in Computer Science, GPA: 4.30 — Sept 2016 – June 2021
Advisor: Doug L. James, *Dissertation:* Computer Methods for Collision Processing: From Sound to Topology
Coursework: Geometric and Topological Data Analysis, Spectral Audio Signal Processing, Physical Audio Signal Processing

Princeton University — Princeton, NJ
AB Physics, *magna cum laude,* GPA: 3.85 — Sept 2011 – June 2015
Advisor: Jason W. Fleischer, *Thesis:* Phase Retrival by Flattening the Wavefront

Highlighted Work

Ante Qu and Doug L. James.
"Fast Linking Numbers for Topology Verification of Loopy Structures."
ACM Transactions on Graphics. 40, 4, Article 106 (SIGGRAPH 2021)

Alejandro M. Castro*, **Ante Qu***, Naveen Kuppuswamy, Alex Alspach, and Michael Sherman
"A Transition-Aware Method for the Simulation of Compliant Contact with Regularized Friction."
IEEE Robotics and Automation Letters (RA-L). 5, 2, pp 1859–1866 (ICRA 2020)

Ante Qu and Doug L. James.
"On the Impact of Ground Sound."
Proceedings of the 22nd International Conference on Digital Audio Effects (DAFx 2019)

Jui-Hsien Wang, **Ante Qu,** Timothy R. Langlois, and Doug L. James.
"Toward Wave-based Sound Synthesis for Computer Animation."
ACM Transactions on Graphics. 37, 4, Article 109 (SIGGRAPH 2018)

Other Publications and Manuscripts

Rundong Wu, Joy Xiaoji Zhang, Jonathan Leaf, Xinru Hua, **Ante Qu**, Claire Harvey, Emily Holtzman, Joy Ko, Brooks Hagan, Doug James, François Guimbretière, and Steve Marschner
"Weavecraft: An Interactive Design and Simulation Tool for 3D Weaving."
ACM Transactions on Graphics. 39, 6, Article 210 (SIGGRAPH Asia 2020)

Gabriel Cirio, **Ante Qu,** George Drettakis, Eitan Grinspun, and Changxi Zheng.
"Multi-Scale Simulation of Nonlinear Thin-Shell Sound with Wave Turbulence."
ACM Transactions on Graphics. 37, 4, Article 110 (SIGGRAPH 2018)

Ante Qu, Stephane Ethier, Eliot Feibush, and Roscoe White.
"Multi-threaded acceleration of ORBIT code on CPU and GPU with minimal modifications."
Poster Presentation at the APS Division of Plasma Physics 2013. PPPL report 4996.

Industry Experience

Toyota Research Institute, Research Scientist Intern and Contractor, Robotics, Dynamics and Simulation — Cambridge, MA
- Worked on a method to reliably simulate compliant contact for robotic manipulation and grasping — Jun 2019 – Jun 2020
- Added new first-order implicit integrators in Drake, an open-source C++ dynamics toolbox for robotics
- Wrote detailed documentation and unit tests for contributions to Drake

Adobe, Research Scientist Intern, Creative Intelligence Lab — Seattle, WA
- Prototyped a fast acoustic transfer scheme that uses shape data to approximate modal sound amplitudes — Summer 2018
- Generated a dataset of acoustic transfer solves using the Boundary Element Method (BEM)

Microsoft, Software Engineer (Full Time), Office Graphics (graphics features in MS Office suite) — Redmond, WA
- Worked in a small crew to enable Scalable Vector Graphics (SVG) file insertion and editing, a cross-platform cross-product feature, in a large production C++ codebase — Aug 2015 – Aug 2016
- Prototyped a user-facing graphics feature that led to a patent (US10621763B2, Sketch-Effect Hatching)

NVIDIA, Systems Software Intern, CUDA Chips team (Pascal and Volta) — Santa Clara, CA
- Designed a test plan for a Pascal hardware performance-optimization feature — Summer 2014
- Wrote tests to validate the functionality of a new math operation, FP64 atomic add

Skills

Programming Languages and Toolsets: C++, MATLAB, Python, CUDA, OpenMP, Eigen (linear algebra library), Mathematica
Software Engineering: source control (git), branch management with automated testing, unit tests, documentation (example)
Software: Adobe Creative Suite (InDesign, Illustrator, Premiere), Blender, Mitsuba Renderer (ray tracer), Autodesk Maya
Numerical Methods: familiarity with methods for numerical linear algebra, ODEs, and some PDEs, DSP (basic)

Selected Awards and Honors

National Science Foundation Graduate Research Fellowship (NSF GRFP) — 2015 (Declined), 2017

William L. Putnam Competition 2012 Honorable Mention (Top 84) — 2013

International Physics Olympiad (IPhO) Gold Medalist — 2011

Service and Teaching

ACM Siggraph Asia 2021, Reviewer — 2021

IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS) 2020, Reviewer — 2020

Eurographics & Eurovis (EGEV) 2020, Reviewer — 2020

Stanford University, Teaching Assistant

CS 205A Mathematical Methods for Robotics, Vision, and Graphics — Winter 2018
- Led weekly recitations and office hours to solidify student understanding
- Developed written and programming assignments, exam questions, and solutions
- Received the SCPD Remote Student Teaching Excellence Award

CS 348C Computer Graphics: Animation and Simulation — Autumn 2017
- Developed programming assignments on constrained dynamics and 2D APIC/FLIP fluid simulations

Stanford Computer Graphics Lunch (GCafe), Social Chair — 2017

Mercer County Math Circle, Co-President — 2014–2015