

Summary

- Computer graphics PhD graduate with a strong grasp of math and physics. Quick learner.
- 5 years of research experience in physics simulations: yarn-level cloth, contact modeling, and sound synthesis
- 6 years of C++ experience with 2 years in production software and solid expertise with data structures
- Looking for roles with significant challenges in physics simulations, in any of the following application areas: AR/VR, character animation, VFX, robotics, and autonomous systems

Education

Stanford University Stanford, CA
Ph.D. in Computer Science, GPA: 4.30 Sept 2016 – Summer 2021 (Expected)
Advisor: Doug L. James, *Dissertation:* Computer Methods for Collision Processing: From Sound to Topology

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

Highlighted Work

Alejandro M. Castro*, Ante Qu*, Naveen Kuppaswamy, 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.

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)

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, Aug 2015 – Aug 2016
a cross-platform cross-product feature, in a large production C++ codebase
• 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

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

- 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

References

Doug L. James
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Changxi Zheng
Associate Professor, Columbia University
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Timothy R. Langlois
Senior Research Scientist, Adobe
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