

# Timothy R. Langlois

**education** Ph.D., Computer Science, Cornell University, 2011–2016.

Advised by Doug James

Courses:

- Nonlinear Finite Element Methods
- Computational Motion
- Dynamical Systems
- Sparse Matrix Computations
- Programming Languages and Logics
- Realistic Image Synthesis
- Partial Differential Equations
- Operating Systems
- Analysis of Algorithms

B.S., Computer Systems Engineering, University of Massachusetts Amherst, 2009.

Summa Cum Laude

Double major in Computer Science

**research  
interests** Computer Graphics  
Computational Physics  
Acoustics  
Scientific Computing

**publications** *Conference and Journal Articles*

Qiaodong Cui, Timothy R. Langlois, Pradeep Sen, and Theodore Kim “[Spiral-spectral fluid simulation](#).” *ACM Transactions on Graphics (SIGGRAPH Asia 2021)*. 2021.

Danyong Zhao, Yijing Li, Siddhartha Chaudhuri, Timothy R. Langlois and Jernej Barbic “[ERGOB-OSS: Ergonomic Optimization of Body-Supporting Surfaces](#).” *IEEE Transactions on Visualization and Computer Graphics*. 2021.

Zachary Ferguson, Minchen Li, Teseo Schneider, Francisca Gil-Ureta, Timothy R. Langlois, Chenfanfu Jiang, Denis Zorin, Danny M. Kaufman, and Daniele Panozzo “[Intersection-free Rigid Body Dynamics](#).” *ACM Transactions on Graphics (SIGGRAPH 2021)*. August, 2021.

Minchen Li, Zachary Ferguson, Teseo Schneider, Timothy R. Langlois, Denis Zorin, Daniele Panozzo, Chenfanfu Jiang, and Danny M. Kaufman “[Incremental Potential Contact: Intersection- and Inversion-free, Large-Deformation Dynamics](#).” *ACM Transactions on Graphics (SIGGRAPH 2020)*. August, 2020.

Qiaodong Cui, Timothy R. Langlois, Pradeep Sen, and Theodore Kim “[Fast and Robust Stochastic Structural Optimization](#).” *Computer Graphics Forum (Eurographics)*. 2020.

Zhenyu Tang, Nicholas J. Bryan, Dingzeyu Li, Timothy R. Langlois, and Dinesh Manocha “[Scene-Aware Audio Rendering via Deep Acoustic Analysis](#).” *IEEE VR 2020 Journal Track (TVCG)*. March, 2020.

Minchen Li, Ming Gao, Timothy R. Langlois, Chenfanfu Jiang, Danny Kaufman “[Decomposed Optimization Time Ingetrator for Large-Step Elastodynamics](#).” *ACM Transactions on Graphics (SIGGRAPH 2019)*. August, 2019.

Rahul Arora, Alec Jacobson, Timothy R. Langlois, Yijiang Huang, Caitlin Mueller, Wojciech Matusik, Ariel Shamir, Karan Singh, David I.W. Levin “[Volumetric Michell Trusses for Parametric Design & Fabrication](#).” *Proceedings of the 3rd ACM Symposium on Computational Fabrication (SCF)*. June, 2019.

- Pedro Morgado, Nuno Vasconcelos, Timothy R. Langlois, Oliver Wang. “Self-Supervised Generation of Spatial Audio for 360° Video.” *Neural Information Processing Systems (NIPS)*. December, 2018.
- Jui-Hsien Wang, Ante Qu, Timothy R. Langlois, Doug James. “Toward Wave-based Sound Synthesis for Computer Animation.” *ACM Transactions on Graphics (SIGGRAPH 2018)*. 37(4), August, 2018.
- Dingzeyu Li, Timothy R. Langlois, Changxi Zheng. “Scene-Aware Audio for 360° Videos.” *ACM Transactions on Graphics (SIGGRAPH 2018)*. 37(4), August, 2018.
- Timothy R. Langlois, Ariel Shamir, Daniel Dror, Wojciech Matusik, David I.W. Levin. “Stochastic Structural Analysis for Context-Aware Design and Fabrication.” *ACM Transactions on Graphics (SIGGRAPH Asia 2016)*. 35(6), December, 2016.
- Timothy R. Langlois, Changxi Zheng, and Doug L. James. “Toward Animating Water with Complex Acoustic Bubbles.” *ACM Transactions on Graphics (SIGGRAPH 2016)*. 35(4), July, 2016.
- Timothy R. Langlois, Steven S. An, Kelvin K. Jin, and Doug L. James. “Eigenmode Compression for Modal Sound Models.” *ACM Transactions on Graphics (SIGGRAPH 2014)*. 33(4), August, 2014.
- Timothy R. Langlois and Doug L. James. “Inverse-Foley Animation: Synchronizing rigid-body motions to sound.” *ACM Transactions on Graphics (SIGGRAPH 2014)*. 33(4), August, 2014.
- Timothy R. Langlois, Ramgopal R. Mettu, and Richard W. Vachet. “Protein Identification Using Receptor Arrays and Mass Spectrometry.” *Advances in Computational Biology*, Springer Advances in Experimental Medicine and Biology Series. 680, 343-351, 2010.

#### Patents

- Srinivas Ravela, William J. Dupree, Timothy R. Langlois, Marilyn M. Wolfson, and Christopher M. Yang. “Method and apparatus for generating a forecast weather image.” U.S. Patent No. 8,625,840. 7 Jan. 2014.

- experience** Senior Research Scientist: Adobe Research Creative Intelligence Lab, 2018-Present.  
 Research Scientist: Adobe Research Creative Technologies Lab, 2016-2018.  
 Research Intern: Disney Research Boston, 2015 (summer).  
 Software Engineer: MIT Lincoln Laboratory, 2009–2011.  
 Developed distributed, real-time weather prediction algorithms.  
 Software Engineering Intern: Raytheon, 2008 (summer).  
 Software Engineering Intern: DEKA Research and Development, 2006–2008 (summers/winters).  
 Developed software for embedded systems on various medical devices.
- teaching** Teaching Assistant: Physically Based Animation (CS5643), Cornell University, 2015.  
 Teaching Assistant: Introduction to Computer Graphics (CS4620), Cornell University, 2013.
- service** Reviewer:

- ACM SIGGRAPH
- ACM SIGGRAPH Asia
- ACM TON
- CGF
- ACM TOG
- TVCG
- ECCV
- Pacific Graphics
- IEEE VR

Volunteer: Adobe Employee Community Fund Grant Committee, 2018, 2021.  
Reviewed applications from nonprofit organizations for Adobe grants.

Organizer: Cornell Computer Science Student Brown Bag Seminar, 2013-2015.  
Organized weekly presentations on current research by graduate students.

Volunteer: Expand Your Horizons, 2012.  
Co-organized an educational workshop for middle-school students.

grants  
& awards

Recipient: National Science Foundation, Graduate Research Fellowship, 2012–2016.