OLIVIER MERCIER

oliviermercier.com
oli.mercier@gmail.com

WORK EXPERIENCE

Reality Labs Research, Meta 2018 - Current
Research Scientist - Display Systems Research *Redmond, WA, USA*

· Use computer graphics, mathematics, optimization, and numerical analysis to develop technologies for novel head-mounted display systems

EDUCATION

University of Montreal - supervised by Derek Nowrouzezahrai 2013 - 2018
Ph.D. Computer Science - Iterative Solvers for Physics-based Simulations and Displays

McGill University - supervised by Jean-Christophe Nave 2011 - 2013
Master of Sciences - Applied Mathematics - Numerical PDEs - 4.0/4.0 GPA

University of Montreal 2008 - 2011
Bachelor of Science - Pure and Applied Mathematics - 4.24/4.30 GPA - Mention of Excellence

INTERNSHIPS

Pixar Animation Studios January 2017 - April 2017
Research Intern - supervised by Theodore Kim *Emeryville, CA, USA*

· Investigated upres methods for viscous fluid simulations

Oculus Research June 2016 - December 2016
Research Intern - supervised by Douglas Lanman *Redmond, WA, USA*

· Improved a decomposition method for multifocal displays (1000x faster than previous work)
· Developed software to control and render to a multifocal testbed

Autodesk May 2014 - August 2014
Intern Researcher - supervised by Jos Stam *Toronto, ON, Canada*

· Implemented the Wavelet Turbulence method inside Maya's fluid solver
· Explored new algorithms for real-time smoke simulations

SELECTED AWARDS

2019	Alain Fournier Award – **Best Canadian doctoral dissertation in computer graphics**
2017	University of Montreal FESP Hydro-Quebec Excellence Award
2014/5	U. Montreal's Dept. of Comp. Sci. and Operations Research Excellence Award
2013	Natural Sciences and Engineering Research Council of Canada (NSERC) CGS-D Alexander Graham Bell Scholarship – 16th place mathematics
2013	Fonds de Recherche du Québec Nature et Technologies (FRQNT) – B2 Doctoral Scholarship – 1st place computer science
2011	FRQNT – B1 Masters Scholarship– 1st place mathematics
2011	NSERC CGS-M Alexander Graham Bell Scholarship

SELECTED PUBLICATIONS AND TALKS

· Phillip Guan, **Olivier Mercier**, Michael Shvartsman, Douglas Lanman, *Perceptual Requirements for Eye-Tracked Distortion Correction in VR*, SIGGRAPH 2022.

· Xi-Yuan Yin, **Olivier Mercier**, Badal Yadav, Kai Schneider, Jean-Christophe Nave, *A Characteristic Mapping Method for the two-dimensional incompressible Euler equations*, J. of Comp. Physics, 2021.

· Changwon Jang, **Olivier Mercier**, Kiseung Bang, Gang Li, Yang Zhao, Douglas Lanman, *Design and Fabrication of Freeform Holographic Optical Elements*, ACM TOG (SIGGRAPH Asia), 2020.

· **Olivier Mercier**, Derek Nowrouzezahrai, *Local Bases for Model-reduced Smoke Simulations*, Eurographics, 2020.

· **Olivier Mercier**, Xi-Yuan Yin, Jean-Christophe Nave, *The Characteristic Mapping Method for the Linear Advection of Arbitrary Sets*, SIAM Journal on Scientific Computing, 2020

· **O. Mercier**, *Iterative Solvers for Physics-based Simulations and Displays*, Ph.D. Thesis, 2018.

· **O. Mercier**, Y. Sulai, K. Mackenzie, M. Zannoli, J. Hillis, D. Nowrouzezahrai, D. Lanman, *Fast Gaze-Contingent Optimal Decompositions for Multifocal Displays*, ACM TOG (SIGGRAPH Asia), 2017.

· **O. Mercier**, C. Beauchemin, T. Kim, N. Thuerey, D. Nowrouzezahrai, *Surface Turbulence for Particle-Based Liquid Simulations*, ACM TOG (SIGGRAPH Asia), 2015.

· **O. Mercier**, *Numerical Methods for Set Transport and Related Partial Differential Equations*, Master's Thesis, 2013.

TECHNICAL SKILLS

Programming Languages	C++, C#, Python, JavaScript, Java, Processing, Lua
APIs and Other Languages	OpenGL, DirectX, WebGL, OpenMP, LaTeX
Tools and Softwares	Unity, Blender, Mathematica, Houdini, Perforce/Git/Mercurial
Development Environments	Visual Studio, Arduino, QT Creator, Eclipse, Shadertoy