

OLIVIER MERCIER

olivier-mercier.com
oli.mercier@gmail.com

WORK EXPERIENCE

Facebook Reality Labs

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

- **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.

SELECTED TALKS

- Iterative Solvers for Physics-based Simulations and Displays – PhD Dissertation Award Talk, Graphics Interface 2019, Queen’s University, Kingston, Canada.
- Local Bases for Model-Reduced Fluid Simulations, TOMOGRAPH 2017, University of Toronto, Canada.
- Fast Gaze-Contingent Optimal Decompositions for Multifocal Displays, SIGGRAPH Asia 2017, Bangkok, Thailand.
- Surface Turbulence for Particle-Based Liquid Simulations, SIGGRAPH Asia 2015, Kobe, Japan.
- Winning Solitaire in Shadertoy (2015), LIGUM presentations, University of Montreal, Canada.
- Particle Gradient-Augmented Level Set in Multiphase Flow Problems (2012), American Physical Society, Division of Fluid Dynamics 65th Annual Meeting, San Diego, California, USA.

ACADEMIC SERVICES

- Organizer and programmer for University of Montreal’s DIRO Hackathon2015 event, a coding weekend event for 48 college students. Game built from scratch using the Processing framework.
- Reviewer for SIGGRAPH Asia, Eurographics, Computer Animation and Virtual Worlds, VRIPHYS.
- Webmaster for Laboratoire d’Informatique Graphique de l’Université de Montréal (LIGUM).

TECHNICAL SKILLS

| | |
|---------------------------------|---|
| Programming Languages | C++14, C, Java, JavaScript, Python, Processing, Lua |
| APIs and Other Languages | OpenGL 4.5, DirectX, GLSL, WebGL, OpenMP, LaTeX |
| Tools and Softwares | Mathematica 10, Maya, Houdini, Perforce/Git/Mercurial |
| Development Environments | Visual Studio, QT Creator, Eclipse, Shadertoy, Raspberry Pi |