

## MAXIME CHAMBERLAND

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Languages: French, English

### Studies

- **Université de Sherbrooke** Sherbrooke  
*Ph.D candidate Radiation sciences & Biomedical Imaging* 2013-  
– Research topic: dMRI/fMRI visualization & neurosurgical applications  
– Supervisors: Kevin Whittingstall (Ph.D), Maxime Descoteaux (Ph.D), David Fortin (M.D)
- **Université de Sherbrooke** Sherbrooke  
*M.Sc Computer Science - Medical imaging* 2011-2013  
– Research topic: Real-time fiber tractography  
– Supervisor: Maxime Descoteaux (Ph.D)
- **Université de Sherbrooke** Sherbrooke  
*B.Sc Digital Imaging Science* 2007-2010  
– Cooperative program (4 internships)

### Work Experience

- **CHUS** Sherbrooke  
*Neurosurgery assistant -Pre, intra and post operative data analysis.* 2011-2014
- **Université de Sherbrooke** Sherbrooke  
*Teaching fellow -Visual and digital interactions (IMN638)* 2011-2014
- **Borealis [www.boreal-is.com](http://www.boreal-is.com)** Magog  
*R&D developer* Stagiaire 2010
- **Canadian Space Agency [www.asc-csa.gc.ca](http://www.asc-csa.gc.ca)** St-Hubert  
*Web developer* 2008-2009

### Important Awards and Honors

**2014 Neurotechnix** Best student paper award: Rome, Italy.

**2014 CRSNG** Ph.D scholarship: Alexander-Graham-Bell BESC-D (105 000\$ 3 years).

**2014 FQRNT** Ph.D scholarship: FQRNT (40 000\$ 2 years) - Declined.

**2013 UdeS** Ph.D scholarship: FMSS (57 000\$ 3 years) - Declined.

**2013 UdeS** Best student poster: CIMS (300\$)

**2013 ACFAS** Best picture: Eurêka festival (1500\$)

**2013 UdeS** Best picture: Research day (250\$)

**2013 NSF** Science visualisation challenge: People's choice and honorable mention from jury.

**2012 UdeS** Student work recognition: Travel award (750\$)

**2012 UdeS** Travel award: Sherbrooke Neuroscience Center (500\$)

**2012 Neuro-bureau** Brain-Art Competition: Winner of Educational Gallery.

## Publications

### Journals

- **Chamberland M.\***, Bernier M.\*, Houde J.C., Descoteaux M., Whittingstall K., Using fMRI non-local means denoising to uncover activation in sub-cortical structures at 1.5 T for guided HARDI tractography, *Frontiers in Human Neuroscience* 2014.
- **Chamberland M.**, Fortin D., Mathieu D., Descoteaux M. Real-time HARDI tractography for instantaneous structural connectivity display, *Frontiers in Neuroinformatics* 2014.
- Coupé P., Manjon J., Chamberland M., Descoteaux M., Hiba B. Collaborative Patch-Based Super-Resolution for Diffusion-Weighted Images, *NeuroImage* 2013.

### Conference proceedings

- Girard G., Chamberland M., Houde J-C, Fortin D., Descoteaux M. Neurosurgical tracking at the Sherbrooke Connectivity Imaging Lab (SCIL), *MICCAI DTI-Challenge*, July 2012.

### Book chapters

- Vaillancourt O., Chamberland M., Houde J-C., Descoteaux M., Visualization of Diffusion Propagator and Multiple Parameter Diffusion Signal, *Visualization and Processing of Tensors and Higher Order Descriptors for Multi-Valued Data*, Springer, 2015

### Abstracts

- **Chamberland M.**, Bernier M., Fortin D., Descoteaux M., Whittingstall K. Tractography-driven resting-state fMRI for investigating inter-subject variability, *Proceedings of OHBM 2015*, Honolulu, Hawaii, 2015 (Submitted).
- **Chamberland M.**, Bernier M., Fortin D., Whittingstall K., Descoteaux M. Interactively computing and visualizing functional and structural brain connectivity in real-time, *ISMRM*, Toronto 2015 (Submitted).
- Bernier M., Chamberland M., Cunnane S., Whittingstall K., Subcortical structures in resting state fMRI: uncovering functional networks involving deep-brain structures using non-local mean denoising at 1.5T, *ISMRM*, Toronto 2015 (Submitted).
- **Chamberland M.**, Descoteaux M., Whittingstall K., Fortin D. Simultaneously probing functional and structural brain connectivity in real-time: Fibernavigator: An interactive tool for brain visualization, *Neurotechnix*, Rome, Italy 2014.
- **Chamberland M.**, Bernier M., Fortin D., Descoteaux M., Whittingstall K. Uncovering a visuospatial network at rest, *Proceedings of OHBM 2014*, Hamburg, Germany, 2014.
- **Chamberland M.**, and Descoteaux M. Explore the brain white matter networks in real-time: Multi-sticks fiber tracking, *Proceeding of: International Society of Magnetic Resonance in Medicine (ISMRM)*. Salt Lake City, U.S, 2013.
- **Chamberland M.**, Fortin D., Descoteaux M. Real-Time Fiber Tractography: Interactive Parameter Tuning for Neurosurgical Interventions, In *Proceedings of OHBM 2012*, Beijing, China, June 2012.

### Thesis

- **Chamberland M.**, Visualisation en imagerie par résonance magnétique de diffusion: Tractographie en temps réel des fibres de la matière blanche du cerveau, M.Sc. thesis, 2013.

## Oral presentations

Sophia-Antipolis (INRIA) Lab: Rachid Deriche, Invited speaker, Nice 2014

Neurotechnix, Conference presentation, Rome Italy 2014

Laboratory of Mathematics in Imaging (Harvard), Lab: LMI C.F Westin, Sherbrooke/Boston meeting, 2013

Boston Children's Hospital (Harvard), Lab: CRL Simon Warfield, Sherbrooke/Boston meeting, 2013

## Computer Science

**Languages:** C/C++, Python, OpenGL, GLSL, CUDA, ITK/VTK, Java, HTML, CSS,  $\text{\LaTeX}$ , SPARC

**IDE tools:** Microsoft Visual Studio, CMake, Git, Tortoise SVN

**Softwares:** Dipy, MRtrix, Slicer, MITK, FSL, Brainvisa/Anatomist, AFNI, Matlab, Maple, Scilab, Camtasia, Unity3D (Game engine)

**OS:** Windows, Linux(Ubuntu, Mint)

## Projects

**Fibernavigator (Programmer):** Tool for visualization of DTI and MRI data. C++, OpenGL, GLSL.  
[github.com/scilus/fibernavigator/](https://github.com/scilus/fibernavigator/)

## Interests

Image processing, Scientific visualisation, Medical imaging