

# Cyril Tous, PhD

Innovation in Diagnostic Imaging | PhD in Medical imaging

Saint Denis St, Montréal, QC, Canada.

**Permanent resident:** Canada, France, and New Zealand.

Proficiency: English & French

Relocation: within Canada, available immediately, remote/hybrid/on-site

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[LinkedIn: cyriltous](#), [Google scholar](#)

## SUMMARY

**MRI and ML scientist** with 10+ years of experience in MRI acquisitions and analysis, integrating academic research into clinical applications. Expertise in C++ MRI programming, CNNs, machine learning, motion correction, multidimensional image reconstruction (6D), and diagnostic biomarker development. Experienced in end-to-end product development in partnership with Siemens Healthineers.

**Leadership:** 5+ years managing national and international medical research studies, leading multi-disciplinary, multi-center projects, and engaging diverse stakeholders (radiologists, cardiologists, Siemens, ethics, IP teams).

**Business Acumen:** Strong understanding of diagnostic medical imaging market trends, product management, and strategic stakeholder collaboration; PMBoK (PMP).

## CORE COMPETENCIES

*Programming:* C++, Python (Numpy), MATLAB (mex & UI), R, CUDA, Unix, Git.

*Machine Learning & AI:* CNN (ResNet and UNet, architectures for diffusion models), Deep Learning (DL), TensorFlow, Keras.

*MRI Technology:* Siemens Healthineers certifications (IDEA, ICE) for pulse sequence programming (unit testing), shimming, linear algebra, statistics and signal processing (compressed sensing), electromagnetism, quantum mechanics (spin and moments). Spatiotemporal resolution optimization, gradients and RF waveforms for non-Cartesian K-space sampling acquisitions.

*Clinical applications:* Medical image innovation in T1, T2, 2D-4D-5D flow, Diffusion Tensor Imaging, and MR angiography for congenital heart diseases, MR elastography in the liver and heart.

*Continuous Improvement:* Six Sigma (DMAIC, Ishikawa diagram, FMEA, 5 Whys, Critical to Quality).

*Leadership and Communication Skills:*

- Multidisciplinary cross-team collaboration (MDs, PhDs, lab staff, admins, students), across countries.
- Supervision and mentoring, deliverable oriented.
- Analytical and critical thinking, problem-solving, statistical analysis.
- Multitasking, time management, project management professional (PMP), Microsoft Project.
- Scientific communications, presentations skills.
- Product knowledge, customer-facing roles.

# WORK EXPERIENCE

## Principal Data Scientist (AI and Medical Imaging)

Centre Hospitalier Universitaire Vaudois, Switzerland.  
Prof Matthias Stuber, PhD

07/2022-10/2024

Prof Stuber: *The Free Running Framework is a new cardiac MRI paradigm where ECG lead placement, complex scan planning, repeated breath holding, and time in-efficient acquisitions, have been replaced by a free-running image acquisition, where one single mouse click suffices to initiate a scan, and where a fully flexible and retrospective 3D interrogation of the organ's anatomy and function is enabled in a 5 min scan. Its modular design means that the acquisition can be changed to characterize the tissue (T1, T2, T1rho, fat) or blood flow.*

### Tasks:

- Optimized spatiotemporal resolution for enhanced image quality in **multidimensional MRI datasets**.
- Applied machine learning techniques (**supervised, unsupervised**, multivariate analysis, classification, regression) to improve imaging analytics, continuously upskilling via Coursera and Kaggle.
- Led **product software development** from concept to clinical implementation.

### Achievements:

- Optimization of all gradients in bSSFP and GRE (BEAT\_SN sequence) for 5D golden angle radial trajectory. **Reduced TR by 35% and TE by 25%** factoring physiological, hardware, and software constraints in 6D cardiac MRI. (2 conference presentations, 1 paper pending),
- Implemented Dual VENC 5D radial flow sequence (flow and acceleration encoding).
- Implemented 2D spiral slice selective RF.
- Supervised a PhD student on product development (3 conference presentations, 1 paper pending), converting 3D radial trajectory into 3D cones trajectory. Increased MR acquisition **sampling duty cycle from 32% to 95%**, enhancing **image sharpness by 60%**.

## Principal Data Scientist (AI and Medical Imaging)

### Collaborations Manager and MRI Scientist

Research Center at Centre Hospitalier de l'Université de Montréal.  
Institut TransMedTech de Montréal & Siemens Healthineers, Canada.  
Prof Gilles Soulez, MD

12/2018-07/2022

Prof Soulez: *We combined the minimal invasiveness of intra-arterial hepatic chemotherapy and the high selectivity of transarterial chemoembolization by delivering treatment through an implantable port and guiding the therapeutic agent to the tumors with MRI gradients, a concept we called **magnetic resonance navigation (MRN)**. The therapeutic agents consist of magnetic drug-eluting beads. This method leverages the MR imaging gradients to precisely direct these agents to the tumor with high selectivity.*

### Tasks:

- Led **R&D projects** with **Siemens Healthineers** and clinical partners, **aligning clinical requirements** with **business objectives** to develop innovative MR diagnostic imaging solutions for **Montreal hospitals**.
- Conducted feasibility studies, implementing and testing **pre-commercial** diagnostic imaging **systems**.
- Directed **MRI sequence development** for tracking ferromagnetic particles in hepatic vessels and supported catheterization lab work (CBCT Angio suite).
- Developed **high performance computing** (HPC) pipelines for **multidimensional** shoulder imaging.

### Achievements:

- Increased microrobots **steering efficiency** for **drug delivery** from ~50% to 86%.
- Achieved 80% F1-score in monitoring drug deposition with **CNN-based artifact feature extraction**.
- Developed **quantitative biomarkers** for **six projects simultaneously** addressing clinical research needs and allowing decision-making for cardiologists, radio-oncologists and professors in engineering, in deadline-oriented environments (abstracts and grant submission deadlines).
- Supervised two M.Sc.-MD students (4 conference presentations, 4 papers).
- Secured a **\$619,500 CIHR grant (16% success rate)**
- Initiated and developed new projects (**4x\$12,500** pilot projects) by working independently.
- Led a 200-patients congenital heart disease study **across Canada, France, and New Zealand**.
- Provided **technical** and **strategic recommendations** for Siemens Healthineers **product customization**.

### Notable Recognitions:

- **U.S. patent** for Magnetic Resonance Navigation (#63.620.011).
- Two potentially **patentable technologies**:
  - MRI-compatible cardiac gating for triggering devices (DOI: [10.1109/TBME.2023.3280348](https://doi.org/10.1109/TBME.2023.3280348)).
  - Balloon catheter inflation systems.
- Published sequences designs and parametric mapping for clinical interpretation in **leading journals**
  - **Publications below**.
  - Delivered 25+ orals and abstracts at conferences (ISMRM, ISBI, CMR, RSNA).

## MRI Research Scientist

University of Auckland, New Zealand.

07/2015-12/2018

### Tasks:

- Programmed cardiac diffusion **MRI** on a clinical 3T MR scanner.
- Built **end-to-end image processing pipeline** translating theoretical MR and biological physics into diagnostic images for congenital heart disease in **MATLAB**.

### Achievements:

- **Secured \$109,377** in funding from the NHF in New Zealand to expand scans to more patient cases.
- PhD Thesis: *"Evaluation of Myocardial Microstructure in Congenital Heart Diseases with Diffusion MRI"*.

## Business Consultant

Avel Vor Technology Inc., Rennes, France.

10/2012-03/2013

### Tasks:

- Conducted market studies and marketing/communication analysis to enhance strategic positioning.
- **Improved purchasing** process efficiency through **quality management** initiatives
- Secured new sponsors to support organizational growth.

### Achievements:

- **Identified root causes** of poor market penetration, such as product adoption and NDA signed.
- Delivered product demonstrations to clients, **increasing sales by 30%**.

## EDUCATION

<b>Postdoctoral Fellow</b> University of Lausanne, Lausanne, Switzerland.	2022-2024
<b>Postdoctoral Fellow</b> University of Montreal, TransMedTech Institute, Siemens Healthineers, Montreal, Canada.	2018-2022
<b>Doctor of Philosophy (PhD) in medical imaging</b> University of Auckland, Auckland, New Zealand.	2018
<b>Master's degree in medical physics: signals and images in biology and medicine</b> University of Rennes 1, Rennes, France.	2014
<b>Master's degree in biomedical engineering</b> Superior Institute of Electronics and Digital Technology, Brest, France.	2014
<b>Master's degree in Business Administration (MBA)</b> ESC School of Business, Rennes, France.	2014
<b>Bachelor's degree in physics, optical sciences</b> University of Brittany, Brest, France.	2011
<b>Bachelor's degree in biomedical engineering</b> Superior Institute of Electronics and Digital Technology, Brest, France.	2011

## PRIZES, AWARDS, FELLOWSHIPS

Publication featured as Editor's Pick, Journal of Magnetic Resonance Imaging	06/2023
Best poster presentation, CHU de Montréal <i>Magnetic resonance navigation system for supra-selective embolization of the liver.</i>	05/2020
Postdoctoral Research Excellence Award from Transmedtech Institute Montréal	12/2018
Travel award to present poster and oral at the ISMRM.	02/2018

## CAREER BREAKS

Parental leaves	02/2021-04/2021
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## WEBISTES

<a href="https://orcid.org/0000-0003-2664-5272">https://orcid.org/0000-0003-2664-5272</a>
<a href="https://github.com/c-tous/cardiac-diffusion-MRI">https://github.com/c-tous/cardiac-diffusion-MRI</a>
<a href="https://www.mathworks.com/matlabcentral/fileexchange/79700-cardiac-diffusion-mri/?s_tid=mlc_lp_leaf">https://www.mathworks.com/matlabcentral/fileexchange/79700-cardiac-diffusion-mri/?s_tid=mlc_lp_leaf</a>
<a href="https://www.researchgate.net/profile/Cyril_Tous2">https://www.researchgate.net/profile/Cyril_Tous2</a>
<a href="https://scholar.google.com/citations?user=I9gYacsAAAAJ&amp;hl=en&amp;oi=ao">https://scholar.google.com/citations?user=I9gYacsAAAAJ&amp;hl=en&amp;oi=ao</a>
<a href="https://ca.linkedin.com/in/cyriltous">https://ca.linkedin.com/in/cyriltous</a>

Communications :

<https://www.youtube.com/watch?v=2LvwYVPjPp0> (JMRI video)

Imaging Bordeaux Workshop - Invited speaker:

<https://liryc-education.fr/courses/imaging-bordeaux-workshop-2023/lessons/2023-day-1/topic/diffusion-mri-heart-brain-cyril-tous/>

# APPROVED RESEARCH PROJECTS

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**Project:** MR navigation of drug eluting beads for liver cancer therapy: in-vitro optimization and preclinical efficacy study

**Duration :** 03/2020-03/2024

**Co-investigator:** Prof Gilles Soulez, MD

**Grant:** Canadian Institutes of Health Research

**Total Funding: \$619,500**

**Project Description:** In advanced stages of liver cancer, the preferred treatment involves injecting chemotherapeutic drugs through the liver arteries to embolize the tumor. Current methods rely on X-ray imaging to guide a catheter from an artery in the leg to the target location in the liver, making the process lengthy and limiting the frequency of treatments for patient comfort and safety. We propose a non-invasive approach using a catheter implanted directly in the proper hepatic artery to deliver microbeads loaded with magnetic nanoparticles and chemotherapeutic drugs. These microbeads will be guided to the tumors by the magnetic force of an MRI scanner. Once in the tumor's feeding vessels, the microbeads will begin to disintegrate, gradually releasing the drug. This innovative method will allow for repeated targeted treatments, which are crucial for liver tumor regression and extending patient survival.

**Project:** Improving diagnosis of myocardial dysfunction associated with CHD in children by cardiac DTI: an insight from myocardial fibre architecture to heart function.

**Duration:** 01/2020-07/2023

**Co-investigator:** Dr Francois Pierre Mongeon, MD

**Grant:** Québec Bio Imaging Network Pilot Project

**Total Funding: \$12,000**

**Project Description:** We aim to characterise the structural changes that occur in the hearts of children with congenital heart disease and investigate the effect that these structural changes have on heart function.

**Duration:** 02/2019-07/2023

**Co-investigator:** Dr Beau Pontré, PhD

**Grant:** National Heart Foundation of New Zealand

**Total Funding: \$109,377**

**Project Description:** We aim to characterise the structural changes that occur in the hearts of children with congenital heart disease and investigate the effect that these structural changes have on heart function.

**Duration:** 09/2019-01/2022

**Co-investigator:** Dr Fabien Labombarda, MD

**Grant:** Société Française de Cardiologie

**Total Funding: €12,500**

**Project Description:** We aim to characterise the structural changes that occur in the hearts of children with congenital heart disease and investigate the effect that these structural changes have on heart function.

**Duration:** 09/2019-09/2020

**Co-investigator:** Dr Houda Bahig, MD

**Grant:** Québec Bio Imaging Network Pilot Project

**Total Funding: \$12,000**

**Project Description:** Impact of mid treatment MR scans and innovative diffusion sequences to assess oropharynx tumor response to radiotherapy treatment.

**Duration:** 10/2018-10/2019

**Co-investigator:** Dr Nathalie Bureau, MD and Prof Elijah Van Houten, PhD

**Grant:** Québec Bio Imaging Network Pilot Project

**Total Funding: \$12,000**

**Project Description:** 3D Architecture of Rotator Cuff Muscles with DTI and Tractography: Feasibility and Reproducibility Study in Rotator Cuff Tear Patients and Asymptomatic Volunteers.

## CO-SUPERVISION OF JUNIOR RESEARCHERS

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**Duration :** 07/2023-07/2027

**Student:** Martin Nicoletti (PhD candidate), Université de Lausanne

**Thesis Title:** Optimizing the temporal and spatial resolution of the Free Running sequence with cones trajectory.

**Description:** Simulating cones trajectories in Matlab/Python while satisfying gradients hardware constraints.

**Recognitions:** Presentation at the ISMRM and the SMRA 2024, MRM article (in preparation)

**Duration:** 09/2020-07/2021

**Student:** Alexandre Jodoin (Completed M. Sc.), Université de Montréal

**Thesis Title:** 3D Architecture of Rotator Cuff Muscles with DTI and Tractography: Feasibility and Reproducibility Study in Rotator Cuff Tear Patients and Asymptomatic Volunteers.

**Description:** T1 measurement and DTI of cadaveric human shoulder specimens and healthy volunteers using a 3T MRI.

**Recognitions:** Poster at the ISMRM 2021, article in JMRI 2022

**Duration:** 09/2020-06/2021

**Student:** Ivan Dimov (Completed M. Sc.), Université de Montréal

**Thesis Title:** MR navigation of drug eluting beads for liver cancer therapy: in-vitro optimization and preclinical safety efficacy study

**Description:** Measurement of 2D and 4D flow in a physiological hepatic phantom, hepatic arteries of live swine, and a healthy human volunteer using a 3T MRI and a CBCT angio suite.

**Recognitions:** Oral presentation European Congress of Radiology 2022, article in European Radiology 2022

## PUBLICATIONS

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As a post doctorate:

### In Review.

1. Ning Li, **Cyril Tous**, Ivan P. Dimov, Phillip Fei, Simon Lessard, PhD, Gerald Moran, Samuel Kadoury, PhD, An Tang, MD, Sylvain Martel, PhD, Gilles Soulez, MD. (2024). *Automated system to partially inflate a balloon catheter and control blood flow: a platform for microrobotics in arteries.*
2. **Cyril Tous**, Guillaume Flé, Stanislas Rapacchi, Matthew McGarry, Philip Bayly, Keith Paulsen, Curtis Johnson, Elijah Van Houten. (2024). *Characterization of the Cardiac Wall Stiffness with Shear and Tensile Cardiac Modes Mapping from ex vivo Anisotropic Magnetic Resonance Elastography.*
3. Amina Hadjadj, Marie-Lou Hautot, Ning Li, **Cyril Tous**, Phillip Fei, Mahdi Rezaei Adariani, Simon Lessard, Urs O. Häfeli, Sylvain Martel, Gilles Soulez. (2024) *Magnetic Resonance Navigation of Magnetic Drug-Eluting Beads for Hepatocellular Carcinoma Embolization: Efficiency of Steering Success in Pig Models.*
4. Ning Li, Phillip Fei, Amina Hadjadj, Mahdi Rezaei Adariani, Jennifer Liu, **Cyril Tous**, Ivan P. Dimov, Quan Zhang, Simon Lessard, Zeynab Nosrati, Katayoun Saatch, Urs O. Häfeli, Samuel Kadoury, An Tang, Sylvain Martel, Gilles Soulez (2024). *Deep Learning for Rapid Localization of Superparamagnetic Microrobots in the Arteries of Live Pig's Liver*

### In Preparation

1. **Cyril Tous**, Alexandre Jodoin, Matthew McGarry, Philip Bayly, Keith Paulsen, Curtis Johnson, Nathalie J Bureau, Elijah Van Houten. (2024). *Anisotropic stiffness of the supraspinatus muscle estimated via MR elastography and transversely isotropic nonlinear inversion.*
2. Martin Nicoletti, Augustin C. Ogier, Jérôme Yerly, Christopher W. Roy, Bastien Milani, Ludovica Romanin, Agnese Vella, Matthias Stuber, Stanislas Rapacchi, **Cyril Tous**. *Conical readouts in free-running 3D bSSFP CMRA (2025)*

### Published work

3. **Cyril Tous, (co first), Ning Li (co first), Phillip Fei (co first),** Ivan P. Dimov, Simon Lessard, PhD, Gerald Moran, Samuel Kadoury, PhD, An Tang, MD, Sylvain Martel, PhD, Gilles Soulez, MD. (2024). *An MRI-guided magnetic microrobot system for targeted navigation in the artery: in vivo demonstration at human-scale*. **Science robotics**. DOI: [10.1126/scirobotics.adh8702](https://doi.org/10.1126/scirobotics.adh8702)
4. **Cyril Tous,** Alexandre Jodoin, Beau Pontré, Detlev Grabs, Mikael Begon, Elijah Van Houten, Nathalie J Bureau (2023). *Characterizing the myoarchitecture of the supraspinatus and infraspinatus muscles with MRI using diffusion tensor imaging*. **Journal of Magnetic Resonance Imaging**. <https://doi.org/10.1002/jmri.28840> , <https://www.youtube.com/watch?v=2LvwYVPjPpO>
5. Ning Li, **Cyril Tous,** Ivan P. Dimov, Phillip Fei, Simon Lessard, PhD, An Tang, MD, Sylvain Martel, PhD, Gilles Soulez, MD. (2023). *Design of a Low-cost, Self-adaptive and MRI-compatible Cardiac Gating System*. IEEE Transactions on Biomedical Engineering (TBME). [10.1109/TBME.2023.3280348](https://doi.org/10.1109/TBME.2023.3280348)
6. Ning Li, **Cyril Tous,** Ivan P. Dimov, Pierre-Charles Payer, Phillip Fei, Simon Lessard, Gerald Moran, Ning Jin, Samuel Kadoury, An Tang, Sylvain Martel, Gilles Soule. (2023). *Design of a patient-specific respiratory-motion-simulating platform for in vitro 4D flow MRI*. Annals of Biomedical Engineering. <https://doi.org/10.1007/s10439-022-03117-6>
7. **Cyril Tous,** Alexandre Jodoin, Detlev Grabs, Elijah Van Houten, Nathalie J Bureau. (2023). *Intersession Repeatability of Diffusion-Tensor Imaging in the Supraspinatus and the Infraspinatus Muscles of Volunteers*. Journal of Magnetic Resonance Imaging. <https://doi.org/10.1002/jmri.28424>
8. **Cyril Tous (co First), Ivan P Dimov (co First),** Ning Li, Charlotte Debbaut, Ning Jin, Gerald Moran, An Tang ,Gilles Soulez. (2022). *Assessment of hepatic arterial hemodynamics with 4D flow MRI: In-vitro analysis of motion and spatial resolution related error and in-vivo feasibility study in 20 volunteers*. European Radiology. <https://doi.org/10.1007/s00330-022-08890-5>
9. Ning Li, **Cyril Tous,** Ivan P. Dimov; Dominic Cadoret; Phillip Fei; Simon Lessard, Zeynab Nosrati, Katayoun Saatchi, Urs O. Häfeli, PhD; An Tang, MD; Samuel Kadoury, PhD; Sylvain Martel, PhD; Gilles Soulez, MD;. (2022). *Quantification and 3D localization of magnetically navigated superparamagnetic particles using MRI in phantom and swine chemoembolization models*. IEEE Transactions on Biomedical Engineering. <http://dx.doi.org/10.1109/TBME.2022.3151819>
10. **Cyril Tous (co first), Ning Li (co first),** Ivan P. Dimov, Samuel Kadoury, An Tang, Urs O. Häfeli, Zeynab Nosrati, Katayoun Saatchi, Gerald Moran, Marcus J. Couch, Sylvain Martel, Simon Lessard, Gilles Soulez (2021). *Navigation of Microrobots by MRI: Impact of Gravitational, Friction and Thrust Forces on Steering Succes*. Annals of Biomedical Engineering. <https://doi.org/10.1007/s10439-021-02865-1>
11. Irvin Teh, William Romero, Jordan Boyle, Jaume Coll-Font, Erica Dall'Armellina, Daniel B Ennis, Pedro F Ferreira, Prateek Kalra, Arunark Kolipaka, Sebastian Kozerke, David Lohr, François-Pierre Mongeon, Kévin Moulin, Christopher Nguyen, Sonia Nielles-Vallespin, Brian Raterman, Laura M Schreiber, Andrew D Scott, David E Sosnovik, Christian T Stoeck, **Cyril Tous,** Elizabeth M Tunnicliffe, Andreas M Weng, Pierre Croisille, Magalie Viallon, Jürgen E Schneider. (2021). *Validation of cardiac diffusion tensor imaging sequences: A multicentre test–retest phantom study*. NMR in Biomedicine. <https://doi.org/10.1002/nbm.4685>
12. Ivan P Dimov, **Cyril Tous,** Ning Li, Urs O Häfeli, Sylvain Martel, PhD; Gilles Soulez MD, Msc;. (2021). *Future Advances in Diagnosis and Drug Delivery in Interventional Radiology Using MR Imaging-Steered Theranostic Iron Oxide Nanoparticles*. Journal of vascular and interventional radiology. <http://dx.doi.org/10.1016/j.jvir.2021.05.027>

As a PhD student

13. **Cyril Tous,** Thomas L. Gentles, Alistair A. Young, Beau Pontre. (2020). *Ex vivo cardiovascular magnetic resonance diffusion weighted imaging in congenital heart disease, an insight into the microstructures of tetralogy of Fallot, biventricular and univentricular systemic right ventricle*. Journal of Cardiovascular Magnetic Resonance. <https://doi.org/10.1186/s12968-020-00662-8>

### Doctoral thesis:

*"Evaluation of myocardial microstructure in congenital heart diseases with diffusion magnetic resonance imaging"*. (2019). University of Auckland. <http://dx.doi.org/10.13140/RG.2.2.29113.80480> Number of Pages: 546 Supervisors: Dr Beau Pontré, Prof Alistair Young.

# CONFERENCES

As a post doctorate, Oral presentations:

1. Martin Nicoletti, Augustin C. Ogier, Jérôme Yerly, Christopher W. Roy, Bastien Milani, Ludovica Romanin, Agnese Vella, Matthias Stuber, [Cyril Tous](#). *Conical readouts in free-running 3D bSSFP CMRA (2024) (SMRA)*, Santiago, Chile.
2. [Cyril Tous](#), Guillaume Flé, Matthew McGarry, Philip Bayly, Keith Paulsen, Curtis Johnson, Matthias Stuber, Elijah Van Houten. *Anisotropic stiffness of freshly excised ex vivo swine hearts estimated via transversely isotropic nonlinear inversion MR elastography and transversely isotropic nonlinear inversion at 2-mm isotropic voxel resolution (2023). The International Society for Magnetic Resonance in Medicine (ISMRM)*, Toronto.
3. [Cyril Tous](#), [Imaging Bordeaux Workshop - Invited speaker: <https://liryc-education.fr/courses/imaging-bordeaux-workshop-2023/lessons/2023-day-1/topic/diffusion-mri-heart-brain-cyril-tous/>](#)
4. [Cyril Tous](#), Ning Li, Simon Lessard, Urs O. Häfeli, Samuel Kadoury, An Tang, Sylvain Martel, Gilles Soulez. (2020). *Magnetic resonance navigation system for supra-selective embolization of the liver: in vivo demonstration. Radiological Society of North America (RSNA)*, Chicago.
5. [Cyril Tous \(co first\)](#), [Ivan Dimov \(co first\)](#), Ning Li, Maxime Barat, Tim Bomberna, Ning Jin, Gerald Moran, An Tang, Gilles Soulez. *High resolution 4D flow MRI as a novel approach to multi-dimensional evaluation of hepatic arterial hemodynamics: in vitro optimization and volunteer feasibility study.*(2022) **The European Congress of Radiology (ECR)**, Wien.

As a post doctorate, Poster presentations

6. Martin Nicoletti, Christopher W. Roy, Jérôme Yerly, Robin Ferincz, Bastien Milani, Matthias Stuber, [Cyril Tous](#). *Conical readouts in free-running 3D bSSFP imaging (2024) (ISMRM)*, Singapore.
7. [Cyril Tous](#), Augustin C. Ogier, Martin Nicoletti, Chris W. Roy, Jérôme Yerly, Matthias Stuber. *Convex Gradient Optimization in the Free Running Framework (2024) (ISMRM)*, Singapore.
8. Ning Li, [Cyril Tous](#), Phillip Fei, Ivan P Dimov, Simon Lessard, Urs O. Häfeli, Gilles Soulez. *U-Net-based deep convolutional neural network for detection of superparamagnetic drug-eluting particles used for liver chemoembolization. (2022) (ISMRM)*, London.
9. Elijah Van Houten, [Cyril Tous](#), Alexandre Jodoin, Matthew McGarry, Philip Bayly, Keith Paulsen, Curtis Johnson, Nathalie J Bureau. *Anisotropic stiffness of the supraspinatus muscle estimated via MR elastography and transversely isotropic nonlinear inversion. (2021) (ISMRM)*
10. [Cyril Tous](#), Ivan Dimov, Ning Li, Simon Lessard, Gilles Soulez. *Turbulences in a one bifurcation 4mm internal diameter phantomafter inflating a balloon catheter: a 4D flow/cine phase in-vitro study at systemic pressure. (2021)(ISMRM)*
11. [Cyril Tous](#), Alexandre Jodoin, Detlev Grabs, Elijah Van Houten, Nathalie J Bureau. *Feasibility and Reproducibility Study of Diffusion-Tensor Imaging in Rotator Cuff Muscles of Asymptomatic Volunteers. (2021) (ISMRM)*
12. [Cyril Tous](#), Ivan Dimov, Ning Li, Simon Lessard, Gilles Soulez. *High resolution of 4D flow MRI with joint 4D flow simulation to optimize magnetic resonance navigation of microrobots at the bifurcation. (2021)(ISMRM)*
13. [Cyril Tous](#), Thomas L. Gentles, Alistair A. Young, Beau Pontré. *Ventricular myocyte tractography in specimens of tetralogy of Fallot, dextro and levo transposition of the great arteries and systemic right ventricle. (2021) The Society for Cardiovascular Magnetic Resonance (SCMR)*
14. Ning Li, [Cyril Tous](#), Ivan P. Dimov, Dominic Cadoret, Simon Lessard, Zeynab Nosrati, Katayoun Saatchi, Urs O. Häfeli, An Tang, Samuel Kadoury, Sylvain Martel, Gilles Soulez. *Accurate Quantification and 3D Localization of Magnetic Microparticles in the Liver ((Best Poster)). (2021) Université de Montréal*
15. [Cyril Tous](#), Alexandre Jodoin, Detlev Grabs, Elijah Van Houten, Nathalie J Bureau. *3D Architecture of Rotator Cuff Muscles with Diffusion-Tensor MR Imaging and Tractography: Feasibility and Reproducibility Study in Asymptomatic Volunteers. (2021) Université de Montreal*
16. Irvin Teh, William Romero , Erica Dall'Armellina , Daniel Ennis , Pedro F. Ferreira , Prateek Kalra , Arunark Kolipaka , Sebastian Kozerke , David Lohr , Kevin Moulin , Christopher Nguyen , Sonia Nielles-Vallespin , Beau Pontre , Laura M. Schreiber , Andrew Scott , David Sosnovik , Christian T. Stoeck , [Cyril Tous](#), Elizabeth Tunnicliffe , Vicky Wang , Andreas M. Weng , Alistair Young , Pierre Croisille , Magalie Viallon , and Jürgen E. Schneider. *Reproducibility of diffusion tensor imaging (DTI) on 12 clinical scanners: Towards validation of cardiac DTI sequences. (2020)(ISMRM)*
17. Eva Alonso-Ortiz, [Cyril Tous](#), Ryan Topfer, Julien Cohen-Adad. *Real-Time Z-Shimming for Magnetic Resonance Imaging of the Spinal Cord.*(2020) **Organization for Human Brain Mapping**
18. [Cyril Tous](#), Ning Li, Simon Lessard, Gilles Soulez. *Magnetic resonance navigation system for supra-selective embolization of the liver: in vivo demonstration [Best Poster]. (2020) University of Montreal*



- 19.** Irvin Teh, William Romero, Erica Dall'Armellina, Daniel Ennis, Pedro F. Ferreira, Prateek Kalra, Arunark Kolipaka, Sebastian Kozerke, David Lohr, Kevin Moulin, Christopher Nguyen, Sonia Nielles-Vallespin, Beau Pontre, Laura M. Schreiber, Andrew Scott, David Sosnovik, Christian T. Stoeck, **Cyril Tous**, Elizabeth Tunnicliffe, Vicky Wang, Andreas M. Weng, Alistair Young, Pierre Croisille, Magalie Viallon, Jürgen E.Schneider. *Multi-centre evaluation of diffusion tensor imaging (DTI) in an isotropic phantom: Towards validation of cardiac DTI sequences.* **(2020) (SCMR)**
- 20.** **Cyril Tous** Alistair Young Beau Pontre. *Epicardial fat imaging with diffusion weighted MRI.* **(2019) (ISMRM)**

As a PhD student, Oral presentations

- 21.** **Cyril Tous**, Alistair Young, Beau Pontr . *Assessing myocardial fibre architecture in ex vivo specimens of congenital heart disease.* **(2018) (SCMR)**

As a PhD student, Poster presentations

- 22.** **Cyril Tous**, Alistair Young, Beau Pontr . *A non-Gaussian bi-exponential diffusion model with CUSP74 sampling for improved myocardial helix angle quantification and segmentation.* **(2018) (ISMRM)**
- 23.** **Cyril Tous**, Alistair Young, Beau Pontr . *Validation of myocardial sheetlet with mode and tractography in DKI bi-exponential model.* **(2018) The IEEE International Symposium on Biomedical Imaging (ISBI)**
- 24.** **Cyril Tous**, Alistair Young, Beau Pontr . *The effect of imaging gradients on estimates of cardiac DTI metrics.* **(2018) (SCMR)**
- 25.** **Cyril Tous**, Alistair Young, Beau Pontre. *Assessing myocardial fibre architecture in ex vivo specimens of congenital heart disease.* **(2018) (SCMR)**