

Calder D. Sheagren

PH.D. CANDIDATE - CARDIOVASCULAR MAGNETIC RESONANCE IMAGING

2075 Bayview Ave, Toronto ON, M4N 3M5, Canada

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Education

University of Toronto

PH.D. IN MEDICAL BIOPHYSICS, SUPERVISOR: GRAHAM WRIGHT

Project: Evaluation of Emerging Cardiac Magnetic Resonance Methods in the presence of Cardiac Implantable Electronic Devices

Toronto, ON, Canada

Sep 2020 - Present

University of Chicago

B.S. IN MATHEMATICS WITH HONORS, SUPERVISOR: ERIK SHIROKOFF

Project: Atomic Layer Deposition Titanium Nitride and Niobium Nitride for Microwave Kinetic Inductance Detectors

Chicago, IL, USA

Sep 2016 - Jun 2020

Publications

FIRST-AUTHOR PUBLICATIONS

Calder D. Sheagren, Tianle Cao, Jaykumar H. Patel, Zihao Chen, Hsu-Lei Lee, Nan Wang, Anthony G. Christodoulou, and *Graham A. Wright*, "Motion-Compensated T_1 Mapping in Cardiovascular Magnetic Resonance Imaging: A Technical Review." *Front. Cardiovasc. Med.* 10:1160183. (2023) doi:10.3389/fcvm.2023.1160183

COLLABORATING-AUTHOR PUBLICATIONS

Gregor G. Taylor, Dmitry V. Morozov, Ciaran T. Lennon, Peter S. Barry, **Calder Sheagren**, and *Robert H. Hadfield*, "Infrared single-photon sensitivity in atomic layer deposited superconducting nanowires", *Applied Physics Letters* 118, 191106 (2021) <https://doi.org/10.1063/5.0048799>

Peer-Reviewed Conference Proceedings

FIRST-AUTHOR PROCEEDINGS

Calder D. Sheagren, Brenden T. Kadota, Jaykumar H. Patel, Mark Chiew, and *Graham A. Wright*, "Accelerated Cardiac Parametric Mapping using Deep Learning-Refined Subspace Models". In: O. Camara et al, *Statistical Atlases and Computational Models of the Heart. Regular and CMRxRecon Challenge Papers. STACOM 2023. Lecture Notes in Computer Science*, vol 14507. Springer, Cham. (2024) https://doi.org/10.1007/978-3-031-52448-6_35

Calder Sheagren, Peter Barry, *Erik Shirokoff*, and Qing Yang Tang, "Atomic Layer Deposition Niobium Nitride Films for High-Q Resonators", *Journal of Low Temperature Physics* 199, 875–882 (2020). <https://doi.org/10.1007/s10909-020-02336-2>

Conference Presentations

FIRST-AUTHOR PRESENTATIONS

SyntheticLGE.jl: An Open-Source Toolbox for Retrospective T1 Fitting and Synthetic LGE Image Generation

CALDER SHEAGREN, BRANDON TRAN, JAYKUMAR PATEL, ANGUS LAU, AND *Graham Wright*
International Society of Magnetic Resonance in Medicine Meeting

Singapore - 2024

Digital Poster

Quantifying Cardiac Function in the Presence of Implantable Cardioverter Defibrillators with Cardiovascular Magnetic Resonance Imaging: Evaluation in Healthy Volunteers

CALDER SHEAGREN, XIULING QI, IDAN ROIFMAN, AND *Graham Wright*
Society of Cardiovascular Magnetic Resonance Meeting

San Diego, CA - 2023

Rapid Fire Pitch

A Minimal Cardiac MRI Protocol for Catheter Ablation Planning in Patients with Cardiac Implantable Electronic Devices

CALDER SHEAGREN, TERENCE ESCARTIN, PHILIPPA KRAHN, JUDI PAULSON, MELISSA LARSEN, MARTIN JANICH, IDAN ROIFMAN, AND *Graham Wright*
Society of Magnetic Resonance Angiography Meeting

Los Angeles, CA - 2022

Oral Power Pitch

Validation of Automated Topological LGE Thresholding for Peri-Infarct Substrate Characterization

CALDER SHEAGREN, TERENCE ESCARTIN, PHILIPPA KRAHN, JAYKUMAR PATEL, FUMIN GUO, AND *Graham Wright*
International Society of Magnetic Resonance in Medicine Meeting

London, UK - 2022

Oral Presentation

Fully-Automated LGE Thresholding using Weighted Total Variation Denoising and Persistent Homology CALDER SHEAGREN , TERENCE ESCARTIN, PHILIPPA KRAHN, AND <i>Graham Wright</i> Society of Cardiovascular Magnetic Resonance Meeting	Virtual - 2022 E-poster
Open-source Tools for Topological Data Analysis CALDER SHEAGREN AND <i>Graham Wright</i> CANARIE Research Software Conference	Virtual - 2021 Lightning Talk
Atomic Layer Deposition Niobium Nitride Films for High-Q Resonators CALDER SHEAGREN , ALEXANDER ANFEROV, PETER BARRY, DAVID SCHUSTER, <i>Erik Shirokoff</i> , AND QING YANG TANG Low Temperature Detectors Symposium	Milan, Italy - 2019 Poster
Superconducting Thin Film Atomic Layer Deposition Titanium Nitride for Microwave Resonators CALDER SHEAGREN , PETER BARRY, RITOBAN BASU THAKUR, RONG NIE, <i>Erik Shirokoff</i> , AND QING YANG TANG American Physical Society March Meeting	Boston, MA - 2019 Talk
Applications of Thin Film Atomic Layer Deposition Superconducting Titanium Nitride to Astronomical Measurements CALDER SHEAGREN , PETER BARRY, RITOBAN BASU THAKUR, RONG NIE, <i>Erik Shirokoff</i> , AND QING YANG TANG American Vacuum Society Prairie Chapter Symposium	Chicago, IL - 2018 Poster
COLLABORATING-AUTHOR PRESENTATIONS	
Radiofrequency Ablation (RFA) Lesion Mass Identified from Native T1-weighted MRI Correlates with Average Catheter Contact Force Following Late Gadolinium Enhancement (LGE) MRI-guided Scar Homogenization In A Swine Model of Infarction TERENZ ESCARTIN, MARIA TERRICABRAS, PHILIPPA KRAHN, CALDER SHEAGREN , CHRISTOPHER CHEUNG, JENNIFER BARRY, MELISSA LARSEN, AND <i>Graham Wright</i> Heart Rhythm Society Meeting	Boston, MA, USA 2024 Poster
Pilot Study: Lesion volume identified from native T1-weighted MRI correlates with microvascular obstruction (MVO) volume identified from late gadolinium enhancement (LGE) MRI in patients with and without ICDs after RFA Therapy TERENZ ESCARTIN, MARIA TERRICABRAS, CALDER SHEAGREN , GRAHAM WRIGHT, AND <i>Christopher Cheung</i> Heart Rhythm Society Meeting	Boston, MA, USA 2024 Poster
3D Whole-Heart T1-weighted Imaging in a Two-Minute Free-Breathing Scan for Radio-Frequency Ablation Lesion Assessment JAYKUMAR PATEL, PHILIPPA KRAHN, TERENCE ESCARTIN, CALDER SHEAGREN , LABONNY BISWAS, JEN BARRY, MELISSA LARSEN, AND <i>Graham Wright</i> International Society of Magnetic Resonance in Medicine Meeting	Singapore - 2024 Oral Presentation
3D High SNR Cardiac MRI via Motion-Corrected Averaging of Multi-Heartbeat Acquisitions LIWEN LI, JAYKUMAR H. PATEL, XINRUI GUO, CALDER D. SHEAGREN , GRAHAM A. WRIGHT, AND <i>Fumin Guo</i> International Society of Magnetic Resonance in Medicine Meeting	Singapore - 2024 Digital Poster
Accelerated Reconstruction of Highly Undersampled Cardiac MR Image Navigators XINRUI GUO, CALDER D. SHEAGREN , JAYKUMAR H. PATEL, LIWEN LI, GRAHAM A. WRIGHT, AND <i>Fumin Guo</i> SPIE Medical Imaging Conference	San Diego, CA - 2024 Oral Presentation
Wideband Motion-Corrected T1 Mapping at 3 Tesla: Evaluation in Healthy Volunteers <i>Graham Wright</i> , RACHEL OSPALAK, CALDER SHEAGREN , JASON ROCK, MARCUS COUCH, KELVIN CHOW, XIAOMING BI, JAMIE NEAR, AND IDAN ROIFMAN Cardiovascular Magnetic Resonance Global Meeting	London, UK - 2024 Rapid Fire Pitch
Native T1-weighted MRI Indicates Acute Thermal Injury Post-RF Ablation in VT Patients TERENZ ESCARTIN, CALDER SHEAGREN , MARIA TERRICABRAS, IDAN ROIFMAN, GRAHAM WRIGHT, AND <i>Christopher Cheung</i> Canadian Cardiovascular Conference Vascular Meeting	Montreal, QC - 2023 Digital Poster
Hierarchical Segmentation of LGE MRI FUMIN GUO, CALDER SHEAGREN , JAYKUMAR PATEL, AND <i>Graham Wright</i> Functional Imaging and Modelling of the Heart	Lyon, FR - 2023 MYOSAIQ Challenge Submission

2D/3D Image Registration for Guidance of Endovascular Interventions in Tibial Vessels

MOUJAN SADARI, JAYKUMAR PATEL, **CALDER SHEAGREN**, TRISHA ROY, AND *Graham Wright*

Imaging Network Ontario Symposium

London, ON - 2023

Pitch-and-Poster

3D Multiscale Weighted Total Variation Registration for MR Image-Guided Catheter Interventions

JAYKUMAR PATEL, **CALDER SHEAGREN**, SAQEEB HASSAN, FATEMEH RASTEGAR JOOYBARI, CHRISTOPHER MACGOWAN, AND

Graham Wright

International Society of Magnetic Resonance in Medicine Meeting

London, UK - 2022

Digital Poster

3D Motion Compensation with Cone Trajectories - in silico Validation Using the MR-XCAT Framework

JAYKUMAR PATEL, **CALDER SHEAGREN**, FATEMEH RASTEGAR JOOYBARI, SAQEEB HASSAN, OKAI ADDY, CHRISTOPHER

MACGOWAN, AND *Graham Wright*

Society of Cardiovascular Magnetic Resonance Meeting

Virtual - 2022

E-poster

Invited Talks

Multicontrast Cardiac MRI: Historical Perspectives and Modern Applications

CHINA ACADEMY OF SCIENCES MRI GROUP

Wuhan, China - 2024

Awards

MBP Excellence Award

UNIVERSITY OF TORONTO FUND

2020-2024

\$21k CAD total

Mary H. Beatty Fellowship Award

UNIVERSITY OF TORONTO

2021-2022

\$10k CAD / year

Teaching

UToronto MBP 1201H: Introduction to Biostatistics

TEACHING ASSISTANT

Aut 2022, Aut 2023

2022: 4.17/5, N=26

2023: 4.19/5, N=32

UChicago MATH 131-132: Introductory Calculus

JUNIOR TUTOR

Aut 2017, Win 2020

UChicago MATH 195-196: Multivariable Calculus and Linear Algebra

GRADER

Spr 2018, Win 2020

UChicago MATH 151-153: Calculus

COURSE ASSISTANT

Win/Spr/Aut 2018, Win/Spr 2019

Outreach

ISMRM Motion Correction Workshop Organizing Committee

Member, 2023-2024

Society of Magnetic Resonance Angiography Early Career Committee

Co-Chair, 2024-Present

Member, 2022-Present

Medical Biophysics Graduate Student Association

Intl. Student Rep., 2023-2024

Communications Rep., 2022-2023

Naperville Central High School

Careers in Medical Physics Talk,

February 2022

Journal Reviewing

Magnetic Resonance Imaging

Reviewer, 2024

Skills

Linux Computation	Python, \LaTeX , vim, bash, git
Image Reconstruction	BART, PyTorch, Sigpy, Julia
Vendor Scanner Programming	GE EPIC, Siemens IDEA
Languages	English (fluent), Mandarin Chinese (conversational)