

Calder D. Sheagren

PH.D. CANDIDATE - CARDIOVASCULAR MAGNETIC RESONANCE IMAGING

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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

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>

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

Conference Presentations

FIRST-AUTHOR PRESENTATIONS

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 *Graham Wright*
Society of Cardiovascular Magnetic Resonance Meeting

Virtual - 2022

E-poster

Open-source Tools for Topological Data Analysis

CALDER SHEAGREN AND *Graham Wright*

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, *Erik Shirokoff*, 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, *Erik Shirokoff*, 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, *Erik Shirokoff*, AND QING YANG TANG

American Vacuum Society Prairie Chapter Symposium

Chicago, IL - 2018

Poster

COLLABORATING-AUTHOR PRESENTATIONS

Accelerated Reconstruction of Highly Undersampled Cardiac MR Image Navigators

XINRUI GUO, CALDER D. SHEAGREN, JAYKUMAR H. PATEL, LIWEN LI, GRAHAM A. WRIGHT, AND *Fumin Guo*

SPIE Medical Imaging Conference

San Diego, CA - 2024

Oral Presentation

Wideband Motion-Corrected T1 Mapping at 3 Tesla: Evaluation in Healthy Volunteers

RACHEL OSPALAK, CALDER SHEAGREN, JASON ROCK, MARCUS COUCH, KELVIN CHOW, XIAOMING BI, JAMIE NEAR, IDAN

ROIFMAN, AND *Graham Wright*

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 *Christopher Cheung*

Canadian Cardiovascular Conference Vascular Meeting

Montreal, QC - 2023

Digital Poster

Hierarchical Segmentation of LGE MRI

FUMIN GUO, CALDER SHEAGREN, JAYKUMAR PATEL, AND *Graham Wright*

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

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	<i>Aut 2017, Win 2020</i>
JUNIOR TUTOR	
UChicago MATH 195-196: Multivariable Calculus and Linear Algebra	<i>Spr 2018, Win 2020</i>
GRADER	
UChicago MATH 151-153: Calculus	<i>Win/Spr/Aut 2018, Win/Spr 2019</i>
COURSE ASSISTANT	

Outreach

ISMRM Motion Correction Workshop Organizing Committee	<i>Member, 2023 - 2024</i>
Society of Magnetic Resonance Angiography Early Career Committee	<i>Co-Chair, 2024-Present Member, 2022 - Present</i>
Medical Biophysics Graduate Student Association	<i>Intl. Student Rep., 2023-2024 Communications Rep., 2022-2023</i>
Naperville Central High School	<i>Careers in Medical Physics Talk, February 2022</i>

Journal Reviewing

Magnetic Resonance Imaging	<i>Reviewer, 2024</i>
Magnetic Resonance in Medicine	<i>Code Reviewer, 2023-Present</i>
Journal of Vacuum Science and Technology	<i>Reviewer, 2021</i>

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)