K. L. Barry **Fung**

medical imaging researcher

about

Berkeley, CA
United States

barry@klfung.ca
http://www.klfung.ca

languages

english
limited proficiency in
cantonese and french

programming

Python, C/C++/C#
MATLAB/Octave
Verilog HDL
Bash, Git
TensorFlow
SQL, Flask, Jekyll
LaTeX

technical skills

algorithm design
circuit design
optical design
FPGA programming
PCB layout
embedded systems
IoT programming
full-stack web design

fields of interest

medical imaging, device engineering, magnetic particle imaging, magnetics, *in vivo* cell tracking, magnetic resonance imaging, image reconstruction, signal processing, optics

education

since 08/17 **Ph.D. Candidate** in Bioengineering — UC Berkeley/UCSF, California, USA
Biomedical Imaging & Instrumentation, GPA 4.00
Supervised by: Dr. SM Conolly

09/12–06/17 **B.A.Sc. with High Honours** — University of Toronto, Toronto, Canada
Engineering Science, Major in Engineering Physics, GPA, 3.89
Monte Carlo simulation of polarization-sensitive second-harmonic generation
Supervised by: Dr. IA Vitkin

experience (R&D)

since 5/18 **Berkeley Imaging Systems Lab, UC Berkeley** — Graduate Student Researcher
Leukocyte Magnetic Particle Imaging, MPI physics, and device engineering

09/17-4/18 **Conolly/Vandsburger/Diederich Lab, UC Berkeley/UCSF** — Rotation Student
SPIO studies, Compressed Sensing in CEST, PCB design

06/17-08/17 **XLV Diagnostics, Toronto, Canada** — Engineering Intern
All-purpose device engineering intern

05/16-04/17 **University Health Network, Toronto, Canada** — Undergraduate Researcher
Monte Simulation of p-SHG

05/15-05/16 **XLV Diagnostics, Toronto, Canada** — Engineering Intern
All-purpose device engineering intern

05/14-08/14 **Baycrest Health Sciences, Toronto, Canada** — Undergraduate Researcher
Algorithms for functional connectivity in fMRI datasets

publications

Monte Carlo simulation of polarization-sensitive second-harmonic generation and propagation in biological tissue
KLB Fung, M Samim, A Gribble, V Barzda, and IA Vitkin
Journal of Biophotonics (2018) **11** (12) e201800036

A perspective on a rapid and radiation-free tracer imaging modality, magnetic particle imaging, with promise for clinical translation
P Chandrasekharan, ZW Tay, XY Zhou, E Yu, R Orendorff, D Hensley, Q Huynh, **KLB Fung**, ... SM Conolly
The British Journal of Radiology (2018) **91** (1091) 20180326

experience (teaching)

since 8/19 **Department of BioE, UC Berkeley** Head Graduate Student Instructor, BioEC165
Discussions, logistics, and marking for medical imaging class of 50

09/16-12/16 **Division of Engineering Science, UToronto** Teaching Assistant, ESC103H1
Led 2-hour linear algebra tutorials, rated 6.4/7 by students

invited talks

10/2019 **Surface protein targeted tracking of white blood cells to inflammation using Magnetic Particle Imaging (WBC-MPI)**
KLB Fung, SM Conolly
35th Annual Conference, UCSF-UCB Graduate Program in Bioengineering, Santa Cruz, US

posters/talks

05/2020 **Compressed sensing reconstruction of cardiac CEST-MRI preserves accuracy, sensitivity and specificity of endogenous metabolites**
B Lam, **KLB Fung**, MH Vandsburger
ISMRM 2020, submitted

05/2020 **Delayed urea differential enhancement CEST (dudeCEST)-MRI with T1 correction for monitoring renal urea handling**
SH Shin, B Zhang, **KLB Fung**, MH Vandsburger
ISMRM 2020, submitted

09/2019 **Dynamics of chain formation and decay for super-resolution Magnetic Particle Imaging**
KLB Fung, SH Shin, C Colson, ZW Tay, ..., SM Conolly
WMIC 2019, Montreal, CA

09/2019 **Surface protein targeted molecular imaging approach for tracking white blood cells to inflammation using Magnetic Particle Imaging**
P Chandrasekharan, XY Zhou, **KLB Fung**, ..., SM Conolly
WMIC 2019, Montreal, CA, co-first author

09/2019 **Order-of-Magnitude Resolution and SNR improvement using Positive Feedback MNP chains in Magnetic Particle Imaging**
ZW Tay, D Hensley, S Savliwala, P Chandrasekharan, **KLB Fung**, ..., SM Conolly
WMIC 2019, Montreal, CA

09/2019 **Evidence that SPIO Chain Formation is Essential for Super-Resolution MPI**
C Colson, ZW Tay, **KLB Fung**, ..., SM Conolly
WMIC 2019, Montreal, CA

09/2018 **Immune Cell Tracking using MPI**
P Chandrasekharan, XY Zhou, **KLB Fung**, ..., SM Conolly
WMIC 2018, Seattle, US

09/2018 **Changes in blood volume measured in response to hypercapnia using Magnetic Particle Imaging**
P Chandrasekharan, E Yu, R Orendorff, **KLB Fung**, C Colson, ..., SM Conolly
WMIC 2018, Seattle, US

09/2018 **Magnetic Particle Imaging Guided Heating in-vivo**
ZW Tay, P Chandrasekharan, D Hensley, XY Zhou, B Zheng, **KLB Fung**, ..., SM Conolly
WMIC 2018, Seattle, US, Presenter

08/2016 **Monte Carlo simulation of second-harmonic polarimetry**
KLB Fung, M Samim and IA Vitkin
Medical Biophysics Summer Student Conference, Toronto, CA

08/2014 **Test-Retest Stability of resting state functional MRI metrics**
KLB Fung, JJ Chen
Medical Biophysics Summer Student Conference, Toronto, CA

honours

08/2019 **NSERC Post Graduate Scholarship - Doctoral Program** NSERC, Canada
Awarded to do device development in MPI

07/2019 **Craven Scholar** Bioengineering, UC Berkeley
Awarded for development in MPI acquisition, hardware, and WBC tracking

07/2018 **Student Research Supplement Award** TRDRP, University of California
Awarded to do research in leukocyte tracking using MPI

12/12-06/17 **Dean's List** UToronto Engineering
Awarded for academic achievement

08/2016 **2nd Place** UToronto MBP Summer Student Conference
Awarded for research in MC simulation of p-SHG

05/2016 **FASE Undergraduate Research Fellowship** UToronto Engineering
Awarded to do research in MC simulation of p-SHG

05/2015 **Engineering Society Award** UToronto Engineering
Awarded for academic and extracurricular achievement

05/2014 **Jack Gorrie Memorial Undergraduate Scholarship** UToronto Engineering
Awarded for academic achievement

05/2014 **Undergraduate Student Research Award** NSERC, Canada
National research grant for algorithm development at Baycrest