

# ADAM P. HARRISON

## Curriculum Vitae

### Contact

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Affiliation: Applied Research Scientist  
AI-Infrastructure  
NVIDIA

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Homepage: www.adamharrison.ca

### Education

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#### PhD in Electrical and Computer Engineering

University of Alberta

Sept. 2010-May 2012, Jan. 2013- Dec. 2015

Advisor: Dr. Dileepan Joseph

- ♦ *Numeric Tensor Framework: Toward a New Paradigm in Technical Computing*
  - ♦ **George B. Walker Prize for best doctoral thesis within department**
  - ♦ **Won most prestigious graduate award at University of Alberta**
  - ♦ Developed numeric tensor algebra and software for multi-dimensional computations, with emphasis on computer vision applications
  - ♦ Took a leave of absence to pursue a 6-month research internship at Siemens Corporate Research
  - ♦ Authored TPAMI and JCS journal articles, SPIE conference proceeding (best paper award), MICCAI conference proceeding, 1 technical report, 2 disclosures, and 1 article under review.
  - ♦ Developed LibNT and NTToolbox, open-source C++ and MATLAB tensor libraries

#### MSc in Electrical and Computer Engineering

University of Alberta

Sept. 2007-Dec. 2009

Advisor: Dr. Dileepan Joseph

- ♦ *Computer Vision for Computer-Aided Microfossil Identification*
  - ♦ Applied computer vision techniques to automate microfossil identification, a task important to climate research and hydrocarbon exploration
  - ♦ Authored/co-authored 3 journal articles and 1 disclosure
  - ♦ Unanimous pass without corrections

#### Bachelor of Science in Engineering Systems and Computing

University of Guelph

Sept. 2002-May 2006

- ♦ Graduated with Distinction, top of class.

## Works in Progress

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- ◆ N. Lay, **A.P. Harrison**, S. Schreiber, G. Dawer, A. Barbu, “Random Hinge Forest for Differentiable Learning,” *Under Review ICML 2018*, pp. 1—9, arXiv: 1802.03882.
- ◆ J. Cai, Y. Tang, L. Lu, **A.P. Harrison**, K. Yan, J. Xiao, L. Yang, R.M. Summers, “Accurate Weakly Supervised Deep Lesion Segmentation on CT scans: Slice-Paced 3D Mask Generation from 2D RECIST,” *Under Review MICCAI 2018*, pp. 1—8.
- ◆ Y. Tang, X. Wang, **A.P. Harrison**, L. Lu, J. Xiao, R.M. Summers, “Attention-Guided Curriculum Learning for Weakly Supervised Classification and Localization of Thoracic Diseases on Chest Radiographs,” *Under Review MICCAI 2018*, pp. 1—8, In Prep.
- ◆ Y. Tang, **A.P. Harrison**, M. Bagheri, J. Xiao, R.M. Summers, “Semi-Automatic RECIST Labeling on CT Scans with Cascaded Convolutional Neural Networks,” *Under Review MICCAI 2018*, pp. 1—8, In Prep.
- ◆ C. Wang, T. Moriya, Y. Hayashi, M. Oda, H. Roth, **A.P. Harrison**, L. Lu, H. Ohkubo, K. Mori, “DeepILD: Weakly-supervised Deep Learning of Interstitial Lung Disease Types on CT Images,” *Under Review MICCAI 2018*, pp. 1—8, In Prep.
- ◆ D. Jin, Z. Xu, Y. Tang, **A.P. Harrison**, D.J. Mollura, “Realistic Pulmonary Nodule Simulation for Robust Lung Segmentation via 3D Conditional Generative Adversarial Network,” *Under Review MICCAI 2018*, pp. 1—8, In Prep.
- ◆ **A.P. Harrison**, R. Symons, D.J. Mollura, R.M. Summers, D.A. Bluemke, and A. Pourmorteza, “Maximum A Posteriori Material Decomposition from Spectral Photon-Counting CT: Application to Human Blood Iron Level Estimation,” pp. 1—6, In Prep.
- ◆ L. Lu, **A.P. Harrison**, “Deep Medical Image Computing: Preventative and Precision Medical Perspectives,” pp. 1—6, In Prep.

## Refereed Journal Articles

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- ◆ **A.P. Harrison** and D. Joseph, “High Performance Rearrangement and Multiplication Routines for Sparse Tensor Arithmetic,” *SIAM Journal on Scientific Computing*, pp. 1—23, Accepted.
- ◆ H.R. Roth, L. Lu, N. Lay, **A.P. Harrison**, A. Farag, A. Sohn, and R.M. Summers, “Spatial Aggregation of Holistically-Nested Convolutional Neural Networks for Automated Pancreas Localization and Segmentation,” *Medical Image Analysis*, pp. 1—10, Accepted.
- ◆ **A.P. Harrison**, Z. Xu, A. Pourmorteza, D. Bluemke, and D.J. Mollura, “A Multi-Channel Block-Matching Denoising Algorithm for Spectral Photon-Counting CT Images,” *Medical Physics*, vol. 44, no. 6, pp. 2447—2452, 2017.
- ◆ **A.P. Harrison** and D. Joseph, “Numeric Tensor Framework: Exploiting and Extending Einstein Notation,” *Journal of Computational Science*, vol. 16, pp. 128—139, 2016.
- ◆ **A.P. Harrison** and D. Joseph, “Maximum Likelihood Estimation of Depth Maps Using Photometric Stereo,” *IEEE Transactions on Pattern Analysis and Machine Intelligence*, vol. 34, no. 7, pp. 1368-1380, 2012.

- ◆ **A.P. Harrison** and D. Joseph, "Translational photometric alignment of single-view image sequences," *Computer Vision and Image Understanding*, vol. 116, no. 6, pp. 765–776, 2012.
- ◆ **A.P. Harrison**, C.M. Wong, and D. Joseph, "Virtual Reflected-Light Microscopy," *Journal of Microscopy*, vol. 244, no. 3, pp. 293-304, 2011.
- ◆ K. Ranaweera, **A.P. Harrison**, S. Bains, and D. Joseph, "Feasibility of Computer-Aided Identification of Foraminiferal Tests," *Marine Micropaleontology*, vol. 72, no. 1-2, pp. 66-75, 2009.
- ◆ A. Cranney, **A.P. Harrison**, et al., "Driving Problems in Patients with Rheumatoid Arthritis," *Journal of Rheumatology*, vol. 32, no. 12, pp. 2337-42, 2005.

## Refereed Conference Proceedings

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- ◆ J. Cai, L. Lu, **A.P. Harrison**, X. Shi, P. Chen, L. Yang, "Iterative Attention Mining for Weakly Supervised Thoracic Disease Pattern Localization in Chest X-Rays," *MICCAI 2018 (Accepted)*, pp. 1—8.
- ◆ K. Yan, X. Wang, L. Lu, L. Zhang, **A.P. Harrison**, M. Bagheri, R.M. Summers, "Deep Lesion Graphs in the Wild: Relationship Learning and Organization of Significant Radiology Image Findings in a Diverse Large-scale Lesion Database," *Computer Vision and Pattern Recognition (CVPR 2018)*, pp. 1—12.
- ◆ D. Jin, Z. Xu, **A.P. Harrison**, D.J. Mollura, "White matter hyperintensity segmentation from T1 and FLAIR images using fully convolutional neural networks enhanced with residual connections," *International Symposium on Biomedical Imaging (ISBI'18)*, pp. 1—5, 2018.
- ◆ **A.P. Harrison**, Z. Xu, K. George, L. Lu, R.M. Summers, D.J. Mollura, "Progressive and Multi-Path Holistically Nested Neural Networks for Pathological Lung Segmentation from CT Images," *MICCAI 2017*, pp. 1—8, 2017. **Shortlisted for MICCAI Young Investigator Award and won MICCAI Travel Grant**
- ◆ K. George, **A.P. Harrison**, D. Jin, Z. Xu, D.J. Mollura, "Pathological Pulmonary Lobe Segmentation from CT Images using Progressive Holistically Nested Neural Networks and Random Walker," *3<sup>rd</sup> Workshop on Deep Learning in Medical Image Analysis*, pp. 1—8, 2017.
- ◆ D. Jin, Z. Xu, **A.P. Harrison**, K. George, D.J. Mollura, "3-D Convolutional Neural Networks with Graph Refinement for Airway Segmentation using Incomplete Data Labels," *8<sup>th</sup> International Workshop on Machine Learning in Medical Imaging*, pp. 1—8, 2017.
- ◆ M. Gao, Z. Xu, L. Lu, **A.P. Harrison**, R.M. Summers, D.J. Mollura, "Multi-label Deep Regression and Unordered Pooling for Holistic Interstitial Lung Disease Detection," *7<sup>th</sup> International Conference on Machine Learning in Medical Imaging*, pp. 1—8, 2016.
- ◆ **A.P. Harrison** and D. Joseph, "Depth-Map and Albedo Estimation with Superior Information-Theoretic Performance," In: E.Y. Lam and K.S. Neil (eds.) *Image Processing Machine Vision Applications VIII, Proceedings of the SPIE*, vol. 9405, pp. 94050C-94050C-15, 2015. **Winner of Best Paper Award**
- ◆ **A.P. Harrison**, N. Birkbeck, and M. Sofka, "IntellEditS: Intelligent Learning-Based Editor of Segmentations," In: Mori, K., Sakuma, I., Sato, Y., Barillot, C., and Navab, N. (eds.) *MICCAI 2013*,

## Refereed Conference Presentations

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- ♦ **A.P. Harrison**, R. Symons, D.J. Mollura, D. Bluemke, A. Pourmorteza, “Anisotropic Denoising for Material Decomposition from Spectral Photon-Counting CT: Application to Human Blood Iron Level Estimation,” *RSNA Annual Meeting*, 2017. **Winner of Trainee Prize in Physics Track**
  - ♦ Z. Xu, **A.P. Harrison**, M. Gao, D. Jin, K. George, D.J. Mollura, “Recent Advances of Deep Learning Methods for Pulmonary Image Analysis: Do We Always Need Precisely Labeled Training Samples?,” *RSNA Annual Meeting*, 2017.
  - ♦ D. Jin, Z. Xu, **A.P. Harrison**, D.J. Mollura, “Multi-scale Segmentations of White Matter Hyperintensities by Deep Fully Convolutional Neural Networks and Graph Refinement,” *White Matter Hyperintensity Grand Challenge*, 2017.
  - ♦ **A.P. Harrison**, Z. Xu, A. Pourmorteza, D. Bluemke, and D.J. Mollura, "A Multi-Channel Block-Matching Denoising Algorithm for Spectral Photon-Counting CT Images," *RSNA Annual Meeting*, 2016. **Winner of Trainee Prize in Physics Track**
- M. Gao, Z. Xu, L. Lu, **A.P. Harrison**, R.M. Summers, D.J. Mollura, "Multi-label Deep Convolutional Neural Networks for Holistic Interstitial Disease Detection," *RSNA Annual Meeting*, 2016.

## Invited Talks

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- ♦ **A.P. Harrison**, “Progressive Holistically Nested Neural Networks for Pathological Lung Segmentation,” Computational Cognition, Vision, and Learning, Johns Hopkins University, Baltimore, MD, USA, 2017.
- ♦ **A.P. Harrison**, “Machine Learning in Medical Imaging,” Integrated Research Facility, National Institutes of Allergy and Infectious Diseases, Frederick, MD, USA, 2017.
- ♦ **A.P. Harrison**, Ziyue Xu, Daniel J. Mollura, “Pathological Lung Segmentation from CT Scans using Holistically-Nested Neural Networks,” National Institutes of Health Clinical Center, Bethesda, MD, USA, 2017.
- ♦ **A.P. Harrison**, "Multi-Index Array Framework with Imaging Applications," Siemens Corporation, Corporate Technology, Princeton, NJ, USA, 2012.
- ♦ C.M. Wong, **A.P. Harrison**, K. Ranaweera, and D. Joseph, "Human-Based Computation for Microfossil Identification," 2012 Geological Society of America Annual Meeting, 2012.

## Disclosures

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- ♦ **A.P. Harrison**, Z. Xu, L. Lu, R.M. Summers, D.J. Mollura, “Progressive and Multi-Path Holistically Nested Neural Networks for Pathological Lung Segmentation from CT Images,” U.S. Provisional

Patent Application, 2017. **Under License**

- ♦ Holger R. Roth, Le Lu, **Adam P. Harrison**, Ronald M. Summers, “Spatial Aggregation of Holistically-Nested Convolutional Neural Networks for Automated Organ (Pancreas) Localization and Segmentation in 3D Medical Scans,” U.S. Provisional Patent Application, 2017.
- ♦ **A. P. Harrison**, N. Birkbeck, and M. Sofka, "IntellEditS: Intelligent Learning-Based Editor of Segmentations," U.S. Provisional Patent Application, 2013.
- ♦ **A. P. Harrison**, M. Sofka, and S. K. Zhou, "Local Splice-Based Editing of Meshes Using Random Walker," U.S. Provisional Patent Application, 2012.
- ♦ D. Joseph and **A.P. Harrison**, "Method and System for Computer-Aided Object Identification," U.S. Provisional Patent Application, 2011.

## Other Publications

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- ♦ J. Cai, Y. Tang, L. Lu, **A.P. Harrison**, K. Yan, J. Xiao, L. Yang, R.M. Summers, “Accurate Weakly Supervised Deep Lesion Segmentation on CT Scans: Self-Paced 3D Mask Generation from RECIST,” arXiv:1801.08614, 2018.
- ♦ M. Gao, Z. Xu, L. Lu, **A.P. Harrison**, R.M. Summers, D.J. Mollura, “Holistic Interstitial Lung Disease Detection using Deep Convolutional Neural Networks: Multi-label Learning and Unordered Pooling,” pp. 1—12, arXiv: 1701.05616, 2017.
- ♦ **A.P. Harrison**, “Numeric Tensor Framework: Toward a New Paradigm in Technical Computing,” Doctoral thesis, U. of Alberta, 2016. **Winner of George B. Walker Prize for Best Doctoral Thesis within Electrical and Computer Engineering**
- ♦ O. Skorka, J. Li, **A.P. Harrison**, M. Alexiuk, and D. Joseph, "Design of a low-dose X-ray imaging system using vertically-integrated CMOS circuits," Technical Report, U. of Alberta, Edmonton, AB, Canada and IMRIS, Winnipeg, MB, Canada, 2011.
- ♦ **A.P. Harrison**, “Computer Vision for Computer-Aided Microfossil Identification,” Masters thesis, U. of Alberta, 2010.
- ♦ “Embedded Open Source Analysis,” White Paper, Klocwork Inc., Ottawa, ON, Canada. [Primary Author]

## Employment

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### **Applied Research Scientist**

**Feb 2018 – present**

*NVIDIA, MD*

- ♦ Using deep-learning and other machine learning tools to help automate radiological screening, detection, and diagnosis
- ♦ Leveraging collaborations with the National Institutes of Health and other institutes to deliver clinically effective impactful machine learning solutions

### **Visiting Fellow**

**Feb 2016 – Feb 2018**

*Supervisor: Dr. Ronald M. Summers*

*Imaging Biomarkers and Computer-Aided Diagnosis Laboratory*

*National Institutes of Health Clinical Center, Bethesda, MD*

- ◆ Applying deep-learning techniques for the automatic detection and diagnosis of organs and diseases from medical scans
- ◆ Winner of NIH Fare Award, MICCAI Travel Grant, RSNA Trainee Prize two years in a row, and shortlisted for MICCAI Young Investigator Award
- ◆ Funding support from the NIH and from a Canadian NSERC post-doctoral fellowship

**Intern**

**June 2012 – Dec. 2012**

*Siemens Corporation, Corporate Technology, Princeton, NJ*

- ◆ Conducted high-level medical imaging research, focusing on intelligent and interactive tools for segmenting CT and MRI volumetric data
- ◆ Produced client deliverable tools, 2 disclosures, and a paper to the Medical Image Computing and Computer Assisted Intervention conference (the largest in medical imaging analysis)

**Professional Services Technician**

**May 2006 – Aug. 2007**

**Technical Lead - Marketing**

*Klocwork Inc, Ottawa, ON*

- ◆ Created customer-driven add-ons to the Klocwork product, on-schedule and meeting customer requirements
- ◆ Published widely read whitepaper *Embedded Open Source Analysis*, explaining the technical results and impact of Klocwork's source code analysis on numerous open source projects

**Research Assistant**

**May 2005 – Aug 2005**

*University of Guelph, Guelph, ON*

- ◆ Prototyped electronic sound capture and visualization device to aid veterinary students in diagnosis
- ◆ Required independently learning new skills, including hands-on circuit design, hardware interfacing, and visualization

**Research Assistant**

**May - Aug 2004 and 2005**

*Ottawa Health Research Institute, Ottawa, ON*

- ◆ Performed data-analysis for clinical epidemiology research units
- ◆ In one summer, produced results and conclusion of rheumatoid arthritis in the population that led to a journal paper

## Teaching

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**Teaching Assistant, Introductory Programming Contest  
2014**

**Winter Term**

*University of Alberta, Edmonton, AB*

- ◆ Helped to develop and run an optional and successful programming contest sponsored by MathWorks, for first-year engineering students in introductory programming
- ◆ Developed YouTube channel and Google site for the contest

- ♦ Took the lead in grading and choosing contest winners, and published subsequent online report

**Lab Instructor, Multimedia Signal Processing  
2013**

**Winter Term 2012 and**

*University of Alberta, Edmonton, AB*

- ♦ Responsible for teaching and running lab sessions of a 4<sup>th</sup> year course on multimedia signal processing
- ♦ Received a university-wide and departmental-wide award for teaching

**Guest Lecturer, Reflectance and Shading**

**Winter Term 2012**

*University of Alberta, Edmonton, AB*

- ♦ Lectured graduate class in computer vision on the topics of shape, reflectance, and image cues

**Teaching Assistant**

**Fall Term 2008 – Winter Term 2010**

*University of Alberta, Edmonton, AB*

- ♦ Assisted instructors in the subjects of introductory C++ programming and technical communication for engineers

**Fellowships**

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| <b>Fellowship</b>   | <b>Level</b>  | <b>Dollar Amount</b> | <b>Date</b> | <b>Details</b>  |
|---|---------------|----------------------|-------------|---|
| NSERC Postdoctoral Fellowship                                 | National      | \$90,000             | 2017-2018   | Offered to the top-ranked applicants for Canadian national-level funding of postdoctoral research |
| Izaak Walton Killam Memorial Scholarship                      | National      | \$70,000             | 2013-2015   | The most prestigious graduate award administered by the University of Alberta                     |
| NSERC Alexander Graham Bell Graduate PhD Scholarship (CGSD)   | National      | \$105,000            | 2010-2013   | Offered to the top-ranked applicants for Canadian national-level funding of graduate studies      |
| President's Doctoral Prize of Distinction                     | Institutional | \$18,991             | 2010-2013   | Offered to students holding the CGSD award  |
| Queen Elizabeth II Scholarship (Master's)                     | Institutional | \$5,400              | 2009        | Awarded based on academic record, letters of appraisal, and potential contributions to research.  |
| NSERC Alexander Graham Bell Graduate M.Sc. Scholarship (CGSM) | National      | \$17,500             | 2008-2009   | Offered to the top-ranked applicants for Canadian national-level funding of graduate studies      |

| <b>Fellowship</b>   | <b>Level</b>  | <b>Dollar Amount</b> | <b>Date</b> | <b>Details</b>   |
|---|---------------|----------------------|-------------|--|
| M.Sc. Scholarship in Information and Communication Technology | Provincial    | \$12,500             | 2008-2009   | Offered to students holding the CGSM award                                     |
| Walter H. Johns Graduate Fellowship                           | Institutional | \$4,435              | 2008-2009   | Offered to students holding the CGSM award                                     |
| University of Alberta Master's Scholarship                    | Institutional | \$15,000             | 2007-2008   | One of 15 scholarships awarded to masters applicants                           |
| University of Guelph Board of Governor's Scholarship          | Institutional | \$8,000              | 2002-2006   | Awarded to students with the highest admission averages of the entering cohort |
| NSERC Undergraduate Student Research Award                    | National      | \$4,500              | 2005        | Support for undergraduate research conducted over the summer                   |

## Awards

| <b>Award</b>  | <b>Level</b>  | <b>Dollar Amount</b> | <b>Date</b> | <b>Details</b>   |
|---|---------------|----------------------|-------------|--|
| Radiological Society of North American Trainee Research Prize | International | \$1,000              | 2017        | Awarded to the best submissions from residents or fellows within the RSNA Annual Meeting, one of the largest meetings in the world |
| Shortlisted for MICCAI Young Investigator Award               | International | n/a                  | 2017        | Recognises the highest quality papers that are first authored by young scientists at the MICCAI conference                         |
| MICCAI Travel Award   | International | \$500                | 2017        | Rewards the best first author students/fellows and subsidise their attendance at the MICCAI conference.                            |
| NIH Fellows Award for Research Excellence                     | Institutional | \$1,000              | 2017        | Recognize the outstanding scientific research performed by NIH intramural postdoctoral fellows                                     |
| Radiological Society of North American Trainee Research Prize | International | \$1,000              | 2016        | Awarded to the best submissions from residents or fellows within the RSNA Annual Meeting, one of the largest meetings in the world |
| George B. Walker Prize  | Institutional | n/a                  | 2016        | Awarded to the best doctoral thesis in the department for those graduating spring 2016   |
| Best Paper Award: SPIE/IS&T Electronic Imaging                | International | n/a                  | 2015        | Awarded to the best paper submitted to the Image Processing Machine Vision Applications track                                      |



| <b>Award</b>  | <b>Level</b>  | <b>Dollar Amount</b> | <b>Date</b> | <b>Details</b>  |
|---|---------------|----------------------|-------------|---|
| Andrew Stewart Memorial Graduate Prize                | Institutional | \$5,000              | 2013        | Award recognizing research accomplishment while registered in a doctoral program            |
| University of Alberta Graduate Student Teaching Award | Institutional | n/a                  | 2012        | University-wide teaching award  |
| Leonard E. Gads Teaching Award                        | Institutional | \$300                | 2012        | One of 4 teaching awards recognizing exemplary service in the Faculty of Engineering        |
| SPIE Student Scholarship                              | International | \$1,000              | 2008-2009   | Awarded based on potential long-range contribution to optics, photonics or related field    |
| Government of Alberta Graduate Student Scholarship    | Provincial    | \$2,000              | 2008-2009   | Recognizing academic performance while enrolled in a graduate program                       |
| University of Guelph Dean's Scholarship               | Institutional | \$3,000              | 2003-2006   | Awarded annually to the top ten students in the College of Physical and Engineering Science |
| Consulting Engineers of Ontario Undergraduate Award   | Provincial    | \$1,000              | 2004-2005   | Awarded to one student from each Ontario university with an engineering program             |
| University of Guelph Entrance Scholarship             | Institutional | \$3,000              | 2002-2003   | Awarded to students with a 90% or higher high-school average                                |

## Academic Service

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### Reviewer

**ad hoc**

- ◆ *Medical Image Analysis*
- ◆ *Medical Image Computing and Computer Assisted Intervention (MICCAI) Conference*
- ◆ *International Symposium on Biomedical Imaging*
- ◆ *Computer Robot Vision Conference*

### Council Executive

**2014-2015**

*Electrical and Computer Engineering Graduate Students' Association, UAlberta*

- ◆ Elected position representing graduate students in the department.
- ◆ Responsibilities included coordinating social events, modernizing the association's constitution, and acting as liaison between students and the department administration

### Social Coordinator

**2005-2006**

- ◆ *College of Physical and Engineering Sciences Student Council, UGuelph*

- ◆ Elected position representing students in the College of Physical and Engineering Sciences
- ◆ Coordinated major events, including career fairs, graduate studies info nights, orientation activities and social events

## Non-Academic Service

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### Youth Mentor

2008 – 2015

*Uncles and Aunts at Large, Edmonton, Alberta*

- ◆ Acting as mentor and positive role model for at-risk youths
- ◆ Organizing and leading monthly activity-based events for a group of boys aged 8-13

### Executive and Trip Leader

2008 – 2010

*University of Alberta Outdoors Club, Edmonton, Alberta*

- ◆ Led groups of students, of diverse backgrounds and outdoors experience, on wilderness trips
- ◆ Managed the administration and purchasing of the club's sizeable rental equipment

### International Volunteer

2006 – 2007

*Canada World Youth, Ostrog, Ukraine and Mission, BC*

- ◆ Participated in philanthropic and work placement projects, such as web design, press packages, and community engagement with an international and varied team
- ◆ Overcame language and cultural barriers by continuously developing teamwork and communication skills

## Media Stories

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- ◆ Richard Cairney, "PhD thesis cites Einstein and Kuhn, identifies computing paradigm," News & Events, Faculty of Engineering, University of Alberta, Jun. 2016
- ◆ Richard Cairney, "Contest gives computer engineering students a chance to get creative in the classroom," News & Events, Faculty of Engineering, University of Alberta, Jun. 2014
- ◆ Ryan Heise, "ECE Professor and students awarded with teaching and research awards," News & Events, Faculty of Engineering, University of Alberta, Jun. 2013
- ◆ Ryan Heise, "ECE researchers cut through noise to map the depth of 2D images," News & Events, Faculty of Engineering, University of Alberta, Jun. 2012
  - Ryan Heise, "Researchers better map the depth of 2-D images," *folio*, University of Alberta, vol. 49, no. 22, pp. 10, Jul. 2012
- ◆ Brian Murphy, "3-D microscope opens eyes to prehistoric oceans and present-day resources," *EurekaAlert!*, Sep. 2011
  - Brian Murphy, "3-D microscope opens eyes to prehistoric oceans and present-day resources," *ScienceDaily*, Sep. 2011
  - Cameron Chai, "University Of Alberta Researchers Develop Virtual Reflected Light

- Microscopy System,” *AZoNano*, Sep. 2011
- Brian Murphy, “3D microscope opens eyes to prehistoric oceans and present-day resources,” *SpaceDaily*, Sep. 2011
  - John Wallace, “Virtual-reflected-light microscope visualizes ancient protozoa in 3D,” *LaserFocusWorld*, Sep. 2011
- ◆ Giles Miller, “A new way to look at microscopic collections,” Curator of Micropalaeontology’s blog, *NaturePlus*, Natural History Museum, London, UK, Sep. 2011
  - ◆ Ryan Bromsgrove, “3D microscope brings new light to miniscule samples,” *The Gateway*, University of Alberta, Sep. 2011
  - ◆ Ryan Heise, “Giving fossils a new look,” *News & Events*, University of Alberta, Aug. 2011
    - Ryan Heise, “Giving fossils a new look,” *folio*, University of Alberta, vol. 49, no. 1, pp. 7, Sep. 2011
    - Ryan Heise, “ECE researchers tackle geoscience problem in the third dimension,” *News & Events*, Faculty of Engineering, University of Alberta, Aug. 2011