

# Eu Wern Teh

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## Summary

I am currently an AI Research Scientist working for LG Toronto AI Lab. I currently work on Speech to 3D Animation problems in which I apply my specialty in annotation-efficient learning to boost performance of models via various techniques such as semi-supervised learning, zero-shot learning.

I am also a Ph.D. holder in the School of Engineering at the University of Guelph where I am advised by Prof. Graham Taylor. I received both of my M.Sc. and B.Sc. degree in Computer Science from the University of Manitoba. My research is focused on annotation-efficient learning, a.k.a learning with less label, where I explore ways to survive in a SCarcely Annotated Data Environment (SCADE).

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## Experience

- LG Toronto AI Lab** 590 KING ST. W. #201, TORONTO, ON, CANADA  
**Machine Learning Research Scientist** Sep '22 – Current  
Researching on annotation-efficient learning for Speech to 3D Animation. Employ various techniques such as semi-supervised learning and zero-shot learning to boost the performance of models.
- Modiface Inc.** 7 ST. THOMAS STREET. #502, TORONTO, ON, CANADA  
**Machine Learning Researcher** May '20 – Oct '20  
Researching on semi-supervised learning techniques for semantic segmentation on natural objects and urban street scenes.
- Machine Learning Research Group, SOE** UNIVERSITY OF GUELPH, GUELPH, ON, CANADA  
**Machine Learning Researcher** Sep '17 – Sep '22  
Researching deep learning techniques to solve various computer vision tasks. (e.g. semi supervised learning, active learning, transfer learning and data augmentation.)
- Computer Vision Lab** UNIVERSITY OF MANITOBA, WINNIPEG, MB, CANADA  
**Machine Learning Researcher** Sep '15 – Sep '17  
Researched on deep learning techniques to solve computer vision task. My thesis is about solving weakly supervised object localization via attention-based network. In addition, I also worked on domain adaptation and transfer learning from image to video dataset for weakly supervised object localization and detection.
- Johnston Group** 1051 KING EDWARD ST., WINNIPEG, MB, CANADA  
**Web Application Developer** Jul '11 – Sep '15  
Developed and maintained a) Billing inquiry System b) Insurance administrative system c) Advisor sales and projection system and d) Insurance quoting system
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## Education

- University of Guelph** GUELPH, ONTARIO, CANADA  
*Ph.D. in Engineering* 2017 – 2022  
Courses: Introduction to Machine Learning, Deep Learning, Machine Vision, Computational Statistics
- University of Manitoba** WINNIPEG, MANITOBA, CANADA  
*M.Sc. in Computer Science* 2015 – 2017  
Thesis: *Weakly Supervised Object Localization Using Attention-based Neural Networks.*  
Courses: Probabilistic Graphical Models, Computational Perception & Cognition, Parallel Computing, Graph Drawing, Research Methodologies.
- University of Manitoba** WINNIPEG, MANITOBA, CANADA  
*B.Sc. in Computer Science & Engineering* 2006 – 2011
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## Skills

- Research expertise:** Deep Learning, Computer Vision, Convolutional Neural Network (CNN), Recurrent Neural Network, Attention based Networks, Machine Learning, Metric Learning, Annotation-efficient Learning
- Deep Learning/Machine Learning Framework:** Torch, PyTorch, TensorFlow, Caffe, MatconvNet, Scikit-learn, libsvm

**Technical expertise:** C++, Python, Matlab, Lua, C, R, PHP, C#, Java, JavaScript, SQL, RPGLE, CLLE

**Others:** Slurm, Linux, Eclipse, Tmux, Vim, Visual Studio, Microsoft SQL Server, Oracle, Latex, ASP.net, Team Foundation Server, RStudio, Git, Gitlab, Github, Pandas

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## Publications

- Eu Wern, Teh.,** and Graham, Taylor. (2022) "Learning with less labels in Digital Pathology via Scribble Supervision from natural images." International Symposium on Biomedical Imaging (ISBI) (poster presentation)
- Eu Wern, Teh.,** and Graham, Taylor. (2022) "Understanding the impact of image and input resolution on deep digital pathology patch classifiers.", Conference on Computer and Robot Vision (CRV) (poster presentation)
- Eu Wern, Teh.,** Terrance, DeVries., Brendan, Duke. Ruowei, Jiang., Parham, Aarabi., and Graham, Taylor. The GIST and RIST of Iterative Self-Training for Semi-Supervised Segmentation, Conference on Computer and Robot Vision (CRV) (poster presentation)
- Eu Wern, Teh.,** Terrance, DeVries., and Graham, Taylor. (2020) "ProxyNCA++: Revisiting and Revitalizing Proxy Neighborhood Component Analysis." European Conference on Computer Vision (ECCV) (poster presentation)
- Eu Wern, Teh.,** and Graham, Taylor. (2020) "Learning with less data via Weakly Labeled Patch Classification in Digital Pathology." International Symposium on Biomedical Imaging (ISBI) (poster presentation)
- Eu Wern, Teh.,** and Graham, Taylor. (2019) "Metric Learning for Patch Classification in Digital Pathology." Medical Imaging with Deep Learning (MIDL) (poster presentation)
- Eu Wern, Teh.,** and Graham, Taylor. (2019) "Apparent Age Estimation with Relational Networks." Conference on Computer and Robot Vision (CRV) (oral presentation)
- Eu Wern, Teh.,** Zhenyu, Guo., and Yang, Wang. (2017) Object Localization in "Weakly Labeled Data Using Regularized Attention Networks." In Proceedings of the IEEE Visual Communications and Image Processing (poster presentation, master thesis)
- Omit, Chanda., **Eu Wern, Teh.,** Mrigank, Rochan., Zhenyu, Guo., and Yang, Wang. (2017) "Adapting Object Detectors from Images to Weakly Labeled Videos." In Proceedings of the British Machine Vision Conference (poster presentation)
- Eu Wern, Teh.,** Mrigank, Rochan., and Yang, Wang. (2016) "Attention networks for weakly supervised object localization." In Proceedings of the British Machine Vision Conference (poster presentation, master thesis)
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## Honors & Awards

Graduate Excellence Entrance Scholarship (GEES), University of Guelph, 2017.

Graduate Enhancement of Tri-Council Stipends (GETS), University of Manitoba, 2015 - 2017.

Conference Travel Grant, Department of Computer Science and Faculty of Science, University of Manitoba, 2016.

International Undergraduate Student Scholarship, University of Manitoba, 2007 - 2008.

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## Professional Services

Reviewer at MICCAI 2020

External reviewer at NeurIPS 2016, CVPR 2017

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## References

Graham Taylor (Associate Professor at University of Guelph)

**email:** gwtaylor@uoguelph.ca

**contact:** 519-824-4120 (ext:53644)

Yang Wang (Assistant Professor at University of Manitoba)

**email:** ywang@cs.umanitoba.ca

**contact:** 204-474-9740

Neil D.B. Bruce (Associate Professor at University of Guelph)

**email:** brucen@uoguelph.ca

**contact:** N/A

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