Weiguang (Gavin) Ding

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Interests

Machine Learning and Related Applications

Education

Simon Fraser University, Burnaby, BC, Canada

Master of Applied Science — Apr 2013
Medical Image Analysis at School of Engineering Science

- Thesis: *Identification of Pacemaking Region in Zebrafish Heart from Optical Mapping Data*

Beihang University (former BUAA), Beijing, China

Bachelor of Engineering — Jul 2010
Automation at School of Advanced Engineering

Industry Experience

Machine Learning Researcher — Nov 2016 to present
Royal Bank of Canada

Artificial Intelligence Researcher — May 2015 to Nov 2016
Kindred Systems Inc.

- **Build machine learning frameworks and tools**
- **Research and implement robotics algorithms**

Machine Learning Engineer (part time) — Sep 2014 to Dec 2014
Sightline Innovation Inc.

- **Object recognition on assembly line**

Research Experience

Machine Learning Research Scientist — Jan 2014 to Apr 2015
School of Engineering, University of Guelph

- **Insect Detection with Convolutional Neural Networks**
- **Transformation Learning with Multiplicative Models**
- **Large-scale neural networks with Theano on multiple GPUs**

Research Assistant — Sep 2010 to Dec 2013
School of Engineering Science, Simon Fraser University

- **Automated Blastomere Detection of Cleavage Stage Human Embryo**
- **Time Series Analysis on Optical Mapped Ex-vivo Zebrafish Heart**
- **Automated Cystoid Fluid Detection in OCT Images**

Publications

1. Yifan Jian, Sujin Lee, Myeong Jin Ju, Morgan Heisler, **Weiguang Ding**, Robert J. Zawadzki, Stefano Bonora, Marinko V. Sarunic, "Lens-based wavefront sensorless adaptive optics swept source OCT", *Scientific reports* (2016)
2. **Weiguang Ding**, and Graham W. Taylor, "Automatic Moth Detection from Trap Images for Pest Management", *Journal of Computers and Electronics in Agriculture* (2016), pp. 17-28.
3. Jan Rudy, **Weiguang Ding**, Daniel Jiwoong Im, and Graham W. Taylor, "Neural Network Regularization via Robust Weight Factorization", arXiv paper, 2015

4. **Weiguang Ding**, Ruoyan Wang, Fei Mao, and Graham W. Taylor, "Theano-based Large-Scale Visual Recognition with Multiple GPUs", *International Conference on Learning Representations (ICLR) workshop*, 2015

5. **Weiguang Ding**, and Graham W. Taylor, " 'Mental Rotation' by Optimizing Transforming Distance", *Neural Information Processing Systems (NIPS) Deep Learning Workshop*, 2014

6. **Weiguang Ding**, Eric Lin, Amanda Ribeiro, Marinko Sarunic, Glen F. Tibbits, and Mirza Faisal Beg, "Automatic Cycle Averaging for Denoising Approximately Periodic Spatiotemporal Signals", *IEEE Transactions on Medical Imaging (TMI)*, 2014

7. Eric Lin, Amanda Ribeiro, **Weiguang Ding**, Leif Hove-Madsen, Marinko Sarunic, Mizra Faisal Beg, and Glen Tibbits, "Optical mapping of the electrical activity of isolated adult zebrafish hearts: acute effects of temperature", *American Journal of Physiology - Regulatory, Integrative and Comparative Physiology (AJP-REGU)*, 2014

8. **Weiguang Ding**, Eric Lin, Amanda Ribeiro, Marinko Sarunic, Glen F. Tibbits, and Mirza Faisal Beg, "On Identification of Sinoatrial Node in Zebrafish Heart Based on Functional Time Series from Optical Mapping", *35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, July 2013

9. **Weiguang Ding**, Mei Young, Serge Bourgault, Sieun Lee, David A. Albiani, Andrew W. Kirker, Farzin Forooghian, Marinko Sarunic, Andrew B. Merkur, and Mirza Faisal Beg, "Automatic Detection of Subretinal Fluid and Sub-Retinal Pigment Epithelium Fluid in Optical Coherence Tomography Images", *35th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC)*, July 2013

Service

Conference Reviewing

- IEEE International Symposium on Biomedical Imaging (ISBI) 2014, 2015
- Computer Vision and Pattern Recognition (CVPR) 2015

Journal Reviewing

- International Journal of Computer Vision (IJCV) 2014

Honours & Awards

Academics

- Graduate Fellowship, Simon Fraser University Aug 2012
- Robar Industries Graduate Scholarship, Simon Fraser University Nov 2011
- Graduate Fellowship, Simon Fraser University Apr 2011
- School of Advanced Engineering-Schlumberger Scholarship (5%) Jan 2009
- Excellent Student Scholarship, Beihang University (1%) Oct 2008
- China Aerospace Sci & Tech Corp Scholarship Oct 2008
- Scholarship of Academics, Beihang University (2%) Dec 2009/2008/2007
- Entrance Scholarship, Beihang University (2%) Sep 2006

Contest

- 2nd Prize, China Undergraduate Mathematical Contest in Modeling Sep 2008
- 2nd Prize, Beihang University Science and Technology Competition Apr 2008
- 1st Prize, Nationwide Regional Undergraduate Physics Contest Dec 2007
- 1st Prize(3rd place), Beihang University Physics Contest Oct 2007
- 2nd Prize, High School Mathematics Contest, Hebei Province Oct 2005
- 1st Prize(23rd place), High School Physics Contest, Hebei Province Sep 2005