
(Charlie) Yichuan Tang, Ph.D.

Deep Learning Researcher, Entrepreneur, Engineer.

CONTACT

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PUBLICATIONS & PATENTS

- 23 published papers
- 11 first-author papers at top conferences
- 2 issued patents
- 10 pending patents

RESEARCH AREAS

Perception

- DNNs for 3D scene understanding
- Generative Models
- Face Recognition

Prediction

- Trajectory Forecasting
- Intention Estimation

Robotics

- Deep Reinforcement Learning
- Model Predictive Control
- SLAM, Motion Planning

Machine Learning

- Meta-learning
- Optimization

ACHIEVEMENTS

- #1 ranking on Kaggle, 100K+ competitors (May 2013)
- National Chess Master

PROGRAMMING

- C/C++, CUDA, Python, Java, ROS, MPI, MATLAB, OpenGL, PyTorch, Tensorflow, MXNet

OTHER ACTIVITIES

- Program committee member for NeurIPS (2012 - present), ICML (2013 -present), ICLR (2014 - present)

Experience

Apple — Research Scientist

JUL 2015 - PRESENT

AI Research Group

OCT 2018 - PRESENT

Developed cutting edge state-of-the-art data-driven algorithms for vision, motion planning, control, deep reinforcement learning, and temporal predictions. Results published in top ML conferences (NeurIPS, ICCV, CoRL).

Special Projects Group

JUL 2015 - OCT 2018

Research and development of deep learning algorithms in autonomous systems.

Perceptual Machines — Co-founder

MAY 2015 - JAN 2017

Deep Learning Startup

Designed and developed deep learning platform for autonomous systems: detection, recognition, inference (on the edge), training, low-level CUDA kernels. Business strategy development, finance and accounting.

Miovision Technologies — Machine Learning Engineer (internship)

FEB 2008 - AUG 2008

Evolution Robotics — Computer Vision Researcher (internship)

MAY 2007 - SEPT 2007

Epson Canada — Machine Learning Researcher (internship)

MAY 2005 - AUG 2005

Education

University of Toronto — Toronto, Canada

Ph.D. in Computer Science

SEP 2010 - JUL 2015

Advisors: **Geoffrey Hinton** and **Ruslan Salakhutdinov**

University of Waterloo — Waterloo, Canada

M.S. in Computer Science

SEP 2008 - MAY 2010

BASc. in Mechatronics Engineering

SEP 2003 - MAY 2008

Publications

1. **Yichuan Charlie Tang** and Ruslan Salakhutdinov
Multiple Futures Predictions. *Neural Information Processing Systems (NeurIPS 2019)*
 2. **Yichuan Charlie Tang**, Jian Zhang, and Ruslan Salakhutdinov
Worst Cases Policy Gradients. *Conference on Robot Learning (CoRL 2019)*
 3. **Yichuan Charlie Tang**
Towards Learning Negotiations via Self-Play. *International Conference on Computer Vision, Autonomous Driving Workshop (ICCVW 2019)*
 4. Lionel Blonde, **Yichuan Charlie Tang**, Jian Zhang, and Russ Webb
Relational Mimic for Visual Adversarial Imitation Learning. *Arxiv Preprint: arxiv.org/abs/1912.08444*
 5. Margot L. J. Yann and **Yichuan Charlie Tang**
Learning deep convolutional neural networks for x-ray protein crystallization image analysis. *Thirtieth AAAI Conference on Artificial Intelligence (AAAI 2016)*
 6. *Goodfellow et al. Challenges in representation learning: A report on three machine learning contests. Neural Networks, 64:59-63, 2015.*
 7. **Yichuan Charlie Tang**, Nitish Srivastava, and Ruslan Salakhutdinov
Learning Generative Models using Visual Attention. *Neural Information Processing Systems (NIPS 2014, Oral)*
 8. **Yichuan Charlie Tang** and Ruslan Salakhutdinov
Learning Stochastic Feedforward Neural Networks. *Neural Information Processing Systems (NIPS 2013)*
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Publications (continued)

9. **Yichuan Charlie Tang**, Ruslan Salakhutdinov, and Geoffrey Hinton
Tensor Analyzers. *International Conference on Machine Learning (ICML 2013)*
10. **Yichuan Charlie Tang**, Ruslan Salakhutdinov, and Geoffrey Hinton
Deep Mixture of Factor Analyzers. *International Conference on Machine Learning (ICML 2012, Oral)*
11. **Yichuan Charlie Tang**, Ruslan Salakhutdinov, and Geoffrey Hinton
Deep Lambertian Networks. *International Conference on Machine Learning (ICML 2012, Oral)*
12. **Yichuan Charlie Tang**, Ruslan Salakhutdinov, and Geoffrey Hinton
Robust Boltzmann Machines for Denoising and Recognition. *IEEE Computer Vision and Pattern Recognition (CVPR 2012)*
13. **Yichuan Charlie Tang** and Abdul-rahman Mohamed
Multiresolution Deep Belief Networks. *15th International Conference on Artificial Intelligence and Statistics (AISTATS 2012)*
14. **Yichuan Charlie Tang** and Chris Eliasmith
Deep Networks for Robust Visual Recognition. *International Conference on Machine Learning (ICML 2010, Oral)*
15. Chris Eliasmith, Terry Stewart, Xuan Choo, Trevor Bekolay, Travis DeWolf
Yichuan Charlie Tang and Daniel Rasmussen. A Large Model of the Functioning Brain. *Science* 30, November 2012 (*Science 2012*)
16. Terry Stewart, **Yichuan Charlie Tang** and Chris Eliasmith
A biologically realistic cleanup memory: Autoassociation in spiking neurons. *Cognitive Systems Research*, 12, 84-92, 2011
17. **Yichuan Charlie Tang**
Deep Learning using Linear Support Vector Machines. *ICML 2013 Challenges in Representation Learning Workshop*.
18. **Yichuan Charlie Tang** and Ruslan Salakhutdinov
A New Learning Algorithm for Stochastic Feedforward Neural Networks. *ICML 2013 Challenges in Representation Learning Workshop*.
19. **Yichuan Charlie Tang**, Ruslan Salakhutdinov, and Geoffrey Hinton
Tensor Analyzers. *NIPS 2012 Workshop on Deep Learning*.
20. **Yichuan Charlie Tang** and Ilya Sutskever
Data Normalization in the Learning of Restricted Boltzmann Machines. *AISTATS 2012 Breaking News Abstract*.
21. **Yichuan Charlie Tang**
Gated Boltzmann Machine for Recognition Under Occlusion.
NIPS 2010 Workshop on Transfer Learning by Learning Rich Generative Models.
22. **Yichuan Charlie Tang** and Geoffrey Hinton
Coarse-to-fine Restricted Boltzmann Machine.
Tech Report, Department of Computer Science, University of Toronto, 2011
23. **Yichuan Charlie Tang** and Xuan Choo
Intrinsic Divergence for Face Recognition.
Tech Report, Department of Computer Science, University of Waterloo, 2009

Invited Talks

- Machine Intelligence in Autonomous Vehicles Summit, Re-Work Conference, March 23, 2017, SF, USA
 - Learn AI With The Best Digital Conference. Sept 19, 2015. BeMyApp Inc.
 - Re-Work Deep Learning Summit Boston 2015. May 25-26, 2015. Boston, Massachusetts, USA.
 - Re-Work Deep Learning Summit San Francisco 2015. Jan 29-30, 2015. San Francisco, USA.
 - Harvard Machine Learning group seminar, Nov 20, 2013. Boston, Massachusetts, USA.
 - M.I.T. Computer Vision group seminar, Nov 19, 2013. Boston, Massachusetts, USA.
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