SHENGYANG SUN

University of Toronto ssy@cs.toronto.edu

EDUCATION

University of Toronto (Department of Computer Science) Toronto, ON, Canada
PhD, Advised by Roger Grosse Sept. 2017 –

Tsinghua University (Department of Electronic Engineering) Beijing, China
Bachelor of Engineering Sept. 2013 – Jul. 2017

RESEARCH INTERESTS

Personal Page

Machine Learning, Probabilistic Models, Uncertainty Estimation

SELECTED PUBLICATIONS

Google Scholar

1. C. Wang*, **S. Sun***, R. Grosse. Beyond Marginal Uncertainty: How Accurately can Bayesian Regression Models Estimate Posterior Predictive Correlations? Submitted to AISTATS 2021.
2. J. Yang*, S. **Sun***, D. Roy. Fast-rate PAC-Bayes Generalization Bounds via Shifted Rademacher Processes. NeurIPS 2019.
3. **S. Sun***, G. Zhang*, J. Shi*, R. Grosse. Functional variational Bayesian neural networks. ICLR 2019.
4. **S. Sun**, G. Zhang, C. Wang, W. Zeng, J. Li, and R. Grosse. Differentiable compositional kernel learning for Gaussian processes. ICML 2018.
5. G. Zhang*, **S. Sun***, Roger Grosse. (2017). "Natural Gradient as Stochastic Variational Inference". ICML 2018.
6. J. Shi*, **S. Sun***, J. Zhu. (2017). "Kernel Implicit Variational Inference, " ICLR 2018.
7. **S. Sun**, C. Chan and L. Carin. (2016). "Learning Structured Weight Uncertainty in Bayesian Neural Networks," AISTATS 2017.

Note: * represents equal contribution.

SELECTED AWARDS

- Borealis AI Global Fellowship Award 2019
- Connaught New Researcher Award 2017
- Connaught International Scholarship (University-wide 20), University of Toronto 2017-2022

RESEARCH EXPERIENCE

University of Toronto (Department of Computer Science) Toronto, ON, Canada
PhD student, Advisor: Roger Grosse Sept. 2017 - present

- My research leverages probabilistic methods to investigate the uncertainty estimation problems, which include: 1) scalable models for reliable uncertainty quantifications such as Gaussian Processes and Bayesian Neural networks; 2) adopting uncertainty estimators for addressing practical problems such as Bayesian Optimization and Active Learning; 3) structure discovery and model analysis from a Bayesian perspective.

Google AI China Center Beijing, China
Research Intern, Advisor: Chong Wang Jun. 2018 - Sept. 2018

- I conducted research on the calibration of modern convolutional and recurrent neural networks.

Tsinghua University (Department of Computer Science) Beijing, China
Undergrad, Advisor: Jun Zhu Mar. 2016 – Jul. 2017

- Implicit variational inference and its application in Bayesian neural networks.

Duke University (Department of Electrical and Computer Engineering) Durham, NC, USA
Research Scholar, Advisor: Lawrence Carin Jul. 2016 – Aug. 2016

- Bayesian neural networks with Matrix variate Gaussian posteriors.

TALKS

- Kernel Implicit Variational Inference
  @ Yu Wang Group, EE, Tsinghua University (June, 2018)
- Neural Kernel Network
  @ ICML Short Talk (July, 2018) @ Google AI China Center (August, 2018)
- Functional variational Bayesian neural networks
  @ Google Toronto (November, 2018)