Ligeng Zhu

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Education

Massachusetts Institute of Technology, USA
Visiting student in Department of Electrical Engineering and Computer Science

Simon Fraser University, Canada
Bachelor in Department of Computing Science

Zhejiang University, China
Bachelor in Department of Computer Science.

Research Interests

Scalable & Efficient Machine Learning Design Automation Machine Learning Systems

Publications Google Scholar (194 citations)

Conferences

1. **Distributed Training Across the World.**
   Ligeng Zhu, Yao Lu, Yujun Lin, Song Han
   Neural Information Processing Systems (NeurIPS), Workshop on Systems for ML (MLSys), 2019.

2. **Deep Leakage from Gradients.**
   Ligeng Zhu, Zhijian Liu, Song Han
   In *Proceeding of 33rd Conference on Neural Information Processing Systems (NeurIPS)*, 2019.

3. **Proxylessnas: Direct neural architecture search on target task and hardware.**
   Han Cai, Ligeng Zhu, Song Han.
   In *Proceedings of the 7th International Conference on Learning Representations (ICLR)*, 2019.
   157 citations / 919 stars on Github / Integrated into PyTorch Hubs

4. **Sparsely Aggregated Convolutional Networks.**
   Ligeng Zhu, Ruizhi Deng, Michael Maire, Greg Mori, Ping Tan.
   In *Proceedings of the 15th European Conference on Computer Vision (ECCV)*, 2018.

5. **Does Colour Really Matter? Evaluation via Object Classification.**
   Brian Funt, Ligeng Zhu.
   In *Proceedings of the 27th Color and Imaging Conference (CIC)*, 2018.

6. **Colorizing Color Images.**
   Ligeng Zhu, Brian Funt.
   In *Proceedings of the 30th Human Vision and Electronic Imaging (HVEI)*, 2018.

7. **Attribute Recognition from Adaptive Parts.**
   Luwei Yang, Ligen Zhu, Yichen Wei, Shuang Liang, Ping Tan.
   In *Proceedings of the 27th British Machine Vision Conference (BMVC)*, 2016.

Journals

1. **AutoML for Architecting Efficient and Specialized Neural Networks**
   Han Cai*, Ji Lin*, , Zhijian Liu*, Yujun Lin*, Kuan Wang*, Tianzhe Wang*, Ligeng Zhu*, Song Han.
   (* denotes equal contribution, sort in alphabetic order)
   In *the IEEE International Symposium on Microarchitecture (Micro)*, 2019.

2. **Small Object Sensitive Segmentation of Urban Street Scene With Spatial Adjacency Between Object Classes**
   Dazhou Guo*, Ligeng Zhu*, Yuhang Lu, Hongkai Yu, Song Wang
   In *the IEEE Transactions on Image Processing (TIP)*, 2019.

In Submission

1. **IOS: Inter-Operator Scheduler for CNN Acceleration**
   Yaoyao Ding, Ligeng Zhu, Zhihao Jia, Song Han.
   Under review at *Design Automation Conference (DAC)*, 2020.

2. **Laplacian of Logarithm for Illuminant Invariance in Convolutional Neural Networks**
   Ligeng Zhu, Brian Funt
   Under review at *IEEE Transactions on Pattern Analysis and Machine Intelligence (PAMI)*.

Experiences

Massachusetts Institute of Technology Sept 2018 - Now
Research Assistant@Prof. Song Han's Group *Cambridge, MA, USA*

· Optimizing CNN computation graph via automatic generated schedules (DAC 2020, in submission)
· Secure (NeurIPS 19) and scalable (ICLR 20, in submission) federated learning.
· Efficient neural architecture search for hardware specialization (ICLR 19).

Sensetime Inc Jan 2018 - Aug 2018
Research Intern@Video Segmentation Group *Beijing, China*

Research on color stability of videos, and modified winograd to accelerate fix-point inference.

Simon Fraser University Sep 2015 - Aug 2018
Research Assistant *Vancouver, BC, Canada*

· With Prof. Brian Funt at Color Vision Lab
  - Automatic white-balancing via Neural Networks (HVEI 18)
  - Color Importantance Analysis in Deep Learning (CIC 18, PAMI)
· With Prof. Ping Tan at Graphic and Vision Lab
  - Deep learning for simultaneously localization and recognition (BMVC 16).

TuSimple Inc May 2017 - Aug 2017
Research Intern@Autonomous Driving Group *San Diego, CA, USA*

· (Patent): Drivable road surface generation using multimodal sensor data
· (Patent): Detecting taillight signals of vehicles via convolutional neural network.

Projects

Most of my research stand on the shoulders of giants named "open-source". Therefore, I embrace open-source as much as possible. My GitHub ranks 3070^{th} among all users.

PyTorch-OpCounter (1.3k stars)	ProxylessNAS (919 stars)	Efficient-PyTorch (370 stars)
pytorch-memonger (238 stars)	SparseNet (121 stars)	fast-artistic-videos (96 stars)

Beside personal projects, I also contribute to : MXNet, PyTorch, TVM, Horovod, MMDetection.

Awards

- **Open Source Scholarship**, Simon Fraser University 2017
- **Academic Scholarship**, Simon Fraser University 2017
- **ACM-ICPC Contest Silver Medal**, Zhejiang University 2015
- **Mathematical Contest In Modeling First Prize**, Zhejiang University 2015

Academic Services

Review papers for: CVPR 20 / AAAI 20 / NeurIPS 19 / ICCV 19 / CVPR 19