

# Renkun Ni

m9zm@cs.umd.edu • +1 (434) 4667292

## RESEARCH INTERESTS

Machine Learning and Optimization

## EDUCATION

**University of Maryland**, Maryland, USA

- Ph.D. in Computer Science
- Adviser: Prof. Tom Goldstein

Aug 2018 – Jun 2023

**University of Virginia**, Virginia, USA

- M.S. in Statistics

Aug 2014 – Jan 2018

**Tongji University**, Shanghai, China

- B.S. in Statistics

Sep 2010 – Jun 2014

## PUBLICATIONS & PREPRINTS

### MACHINE LEARNING

- [6] **Renkun Ni**, Micah Goldblum, Amr Sharaf, Kezhi Kong, Tom Goldstein “Data Augmentation for Meta-Learning,” *NeurIPS Workshop on Meta-Learning (MetaLearn)*, 2020.
- [5] Micah Goldblum, Steven Reich, Liam Fowl, **Renkun Ni**, Valeriia Cherepanova, Tom Goldstein “Unraveling Meta-Learning: Understanding Feature Representations for Few-Shot Tasks,” in *Proc of International Conference on Machine Learning (ICML)*, 2020.
- [4] Ping-Yeh Chiang\*, **Renkun Ni**\*, Ahmed Abdelkader, Chen Zhu, Christoph Studor, Tom Goldstein “Certified Defenses for Adversarial Patches,” in *Proc of International Conference on Learning Representations (ICLR)*, 2020.
- [3] Ping-Yeh Chiang, Jonas Geiping, Micah Goldblum, Tom Goldstein, **Renkun Ni**, Steven Reich, Ali Shafahi “WITCHcraft: Efficient PGD attacks with random step size,” in *Proc of IEEE International Conference on Acoustics, Speech, and Signal Processing (ICASSP)*, 2020.
- [2] Yinpeng Dong, **Renkun Ni**, Jianguo Li, Yurong Chen, Jun Zhu, Hang Su “Learning Accurate Low-Bit Deep Neural Networks with Stochastic Quantization,” in *Proc of The British Machine Vision Conference (BMVC)*, 2017. **[Best Paper Finalist]**
- [1] **Renkun Ni**, Quanquan Gu “Optimal Statistical and Computational Rates for One Bit Matrix Completion,” in *Proc of the International Conference on Artificial Intelligence and Statistics (AISTATS)*, 2016.

### MEDICAL IMAGING

- [2] Tianyuan Xie, Katherine B Crump, **Renkun Ni**, Craig Meyer, Joseph Hart, Silvia Blemker, Xue Feng “Quantitative Relationships Between Individual Lower-Limb Muscle Volumes and Jump and Sprint Performances of Basketball Players,” *The Journal of Strength & Conditioning Research*, 2020.
- [1] **Renkun Ni**, Craig Meyer, Silvia Blemker, Joseph Hart, Xue Feng, “Automatic segmentation of all lower limb muscles from high-resolution magnetic resonance imaging using a cascaded three-dimensional deep convolutional neural network,” *Journal of Medical Imaging*, 2019.

### PATENTS

- [1] Yurong Chen, Jianguo Li, **Renkun Ni**, “Efficient neural networks with elaborate matrix structures in machine learning environments,” *U.S. Patent Application No. 16/632,145*.

## RESEARCH EXPERIENCE

**Research Scientist at Springbok**, Virginia, USA

Jan 2018 – Aug 2018

Working on object detection and segmentation for medical images.

- Automatic muscle segmentation on MRI.
- Quantitative analysis on relationship between muscle volumes and athletic performance
- Mentor: Xue Feng

**Research Intern at Intel Labs China**, Beijing, China

Mar 2016 – Dec 2016

Working on efficient deep neural networks.

- Reduce number of parameters with elaborate matrix structure for deep neural networks.
- Compress deep neural network with low bit quantization and improve the performance.

**AWARDS &  
SCHOLARSHIPS**

- Mentor: Jianguo Li
- NeurIPS Travel Award, 2019
- Intel Patent Award, 2016