

# (Amos) Xinshao Wang

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## EDUCATION

**Machine Learning Summer School 2019**, 26.08 - 06.09, Moscow, Russia

Machine Learning Summer School (MLSS) is a course about modern methods of statistical machine learning and inference. It presents topics which are at the core of modern machine learning, from fundamentals to state-of-the-art practice. Here are the schedule and event details: <https://mlss2019.skoltech.ru/event-details>. **Queen's University Belfast (QUB)**, Belfast, Northern Ireland, United Kingdom

- PhD in [Computer Science](#) Sep 2017 – Jun 2020
  - Supervisors: Prof. Neil M. Robertson (Principal) & Dr. Yang Hua (Secondary)
  - Research Interests: Machine Learning (Deep Metric Learning, Robust Representation Learning under Adverse Conditions, e.g., Noisy Data and Sample Imbalance, Semi-supervised Learning, Example Weighting); Computer Vision (Image/Video Recognition, Person Re-identification).

**Northwest A&F University (NWAUFU)**, Yangling, Shaanxi, China

- B.Eng. in Information Engineering, Graduated with College Honors. Sep 2013 – Jul 2017
  - Supervisor: Prof. Cheng Cai
  - Cumulative GPA: 3.86 / 4.00, 92.82 / 100
  - Grade Rank: 1 / 57

## RESEARCH EXPERIENCE

**AnyVision & Queen's University Belfast**

- PhD Researcher Sep 2017 – Present
  - Deep metric learning: learn discriminative and robust image/video representations for downstream tasks, e.g., image/video retrieval and image/video clustering.
  - Robustness: [robust learning and robust inference in the context of deep learning against noisy labels, noisy observations, outliers, sample imbalance, adversaries, etc.](#) Label noise is directly related to semi-supervised learning.
  - Computer vision: video/set-based person re-identification; image/video classification/retrieval/clustering.

**Tencent YouTu Lab**

- Machine Learning Intern Feb 2017 – Apr 2017
  - Project: Image super-resolution by deep learning
  - Details: The main goal is to achieve real-time single-image super-resolution on an ordinary CPU with negligible performance drop. In addition, I broadened my horizon and learned some about texture synthesis, style transfer and human segmentation using deep learning during the internship.

**Northwest A&F University**, Undergraduate Innovation and Research Programme

- Detection and classification of user faces when logging in to security systems Mar 2015 – Apr 2015
  - Supervisor: Prof. Cheng Cai
  - Role: Team leader
  - Details: We implemented a secure login software system which detects and verifies user faces instead of verifying passwords. It was implemented by C# (Core Functions Implementation) and Windows Form (User Interfaces Control). I was responsible for face detection by Emgu.CV, feature extraction using PCANet, face classification by Large Margin Classifier based on affine hulls. I was also responsible for designing the UI of the software system and messages interaction between different interfaces.
- Agricultural species resources classification based on deep learning Oct 2014 – May 2017
  - Supervisor: Prof. Cheng Cai
  - Role: Team leader
  - Details: Study deep learning algorithms and improve them for feature extraction and classification of agricultural species images.

## PUBLICATIONS

- [8] Xinshao Wang, Yang Hua, Elyor Kodirov, Neil M. Robertson, "[ProSelfLC: Progressive Self Label Correction for Training Robust Deep Neural Networks](#)," in *arXiv*, 2020. [Webpage](#)
- [7] Xinshao Wang, Elyor Kodirov, Yang Hua, Neil M. Robertson, "[Instance Cross Entropy for Deep Metric Learning](#)," in *arXiv*, 2019.
- [6] Xinshao Wang, Elyor Kodirov, Yang Hua, Neil M. Robertson, "[Derivative Manipulation for General Example Weighting](#)," in *arXiv*, 2019. [Github](#). [Invited Seminar Talk at KAUST](#).
- [5] Xinshao Wang, Yang Hua, Elyor Kodirov, Neil M. Robertson, "[IMAE for Noise-Robust Learning: Mean Absolute Error Does Not Treat Examples Equally and Gradient Magnitude's Variance Matters](#)," in *arXiv*, 2019. [Github](#) & [Poster](#).

- [4] Xinshao Wang, Yang Hua, Elyor Kodirov, Guosheng Hu, Romain Garnier, Neil M. Robertson, “[Ranked List Loss for Deep Metric Learning](#),” in *CVPR*, 2019 Poster. [Github](#) & [Slide](#) & [Poster](#).
- [3] Xinshao Wang, Yang Hua, Elyor Kodirov, Guosheng Hu, Neil M. Robertson, “[Deep Metric Learning by Online Soft Mining and Class-Aware Attention](#),” in *AAAI*, 2019 Oral. [Github](#) & [Slide](#) & [Poster](#).
- [2] Xinshao Wang, Elyor Kodirov, Yang Hua, Neil M. Robertson, “[ID-aware Quality for Set-based Person Re-identification](#),” in *arXiv*, 2019.
- [1] Xinshao Wang, Cheng, Cai, “[Weed seeds classification based on PCANet deep learning baseline](#),” in *APSIPA*, 2015 Oral.

## AWARDS & SCHOLARSHIPS

- University Special Research Scholarship, sponsored by AnyVision Oct 2017 – Sep 2020  
It covers full international tuition fees and living expenses.
- China National Scholarship ×3, awarded by China’s Ministry of Education May 2013– May 2016  
This is the highest level scholarship and annually awards outstanding full-time undergraduates except freshmen. I got this great honour every year.
- First-class Professional Scholarship ×3, awarded by NWAFU May 2013– May 2016  
This scholarship awards undergraduates who rank first in terms of GPA.
- Merit Student ×3, awarded by NWAFU May 2013– May 2016  
This awards undergraduates whose comprehensive performance is outstanding.

## LANGUAGES

- Chinese: Native language
- English: Fluent

## SKILLS

Caffe, C++, MATLAB, TensorFlow, MXNet, Python.

## INTERESTS

basketball, swimming, table tennis, pooling, cycling.

## REFERENCES (PLEASE LET ME KNOW IF YOU WOULD LIKE TO CONTACT THEM)

- **Professor Neil M. Robertson**  
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- **Dr Yang Hua**  
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- **Dr Elyor Kodirov**  
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