# Xinyan DAI

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## Education

- **The Chinese University of Hong Kong**
  *Doctor of Philosophy, supervised by* **James Cheng** — *August 2018 - Present*
- **NanJing University** — Top 10%
  *Bachelor of Engineering, Software Institute* — *Sept 2014 - June 2018*

## Research Interests

Similarity Search and Machine Learning. Typically, I am interested in applying similarity search techniques (Locality Sensitive Hashing, Sketching, Vector Quantization) on large scale machine learning.

## Programming Skills

- **Languages**: C++, Python, Java, MPI, Hadoop, Tensorflow, Pytorch **Technologies**: Git, Linux

## Projects

- **MPI-TensorFlow** : A library for tensorflow with MPI-support for distributed machine learning.
- **Similarity Search** :A framework for index based similarity search.
- **Vector Quantization** : A framework for vector quantization.
- **Tensor** : A numpy like computation library for c++.

## Publication & working papers

- Norm-Explicit Quantization: Improving Vector Quantization for Maximum Inner Product Search
  **Xinyan Dai**$^\star$*, Xiao Yan*$^\star$*, Kelvin K. W. Ng, Jie Liu, James Cheng [arxiv] [github]* [**AAAI 20**] [**Oral**]
- Hyper-Sphere Quantization: Communication-Efficient SGD for Federated Learning
  **Xinyan Dai**, *Xiao Yan, Kaiwen Zhou, Kelvin K. W. Ng, James Cheng [arxiv] [github]*
- Norm-Ranging LSH for Maximum Inner Product Search
  *Xiao Yan, Jinfeng Li,* **Xinyan Dai**, *Hongzhi Chen, and James Cheng [arxiv] [github]* [**NeurIPS 18**]
- Norm-Range Partition: A Universal Catalyst for LSH based MIPS
  *Xiao Yan,* **Xinyan Dai**, *Jie Liu, Kaiwen Zhou, James Cheng [arxiv] [github]*
- Understanding and Improving Proximity Graph based Maximum Inner Product Search
  *Jie Liu*$^\star$*, Xiao Yan*$^\star$*,* **Xinyan Dai**, *James Cheng, Ming-Chang Yang [arxiv]* [**AAAI 20**]