Mu **Yang**

RESEARCH ASSISTANT · DATA ENGINEER

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Summary

I currently work as a research assistant at the Institute of Information Science, Academia Sinica, advised by Dr. Wei-Yun Ma at the Chinese Knowledge and Information Processing (CKIP) Lab, conducting researches of natural language processing and computational linguistics.

Previously, I received my master degree at Institute of Applied Mathematical Sciences, National Taiwan University, advised by Dr. Weichung Wang, conducting researches of high-performance parallel computing on hybrid CPU-GPU structures.

I have working experience in Thomas J. Watson Research Center, IBM Corporation as an internship, advised by Dr. I-Hsin Chung, conducting researches of high-performance parallel computing on hybrid CPU-GPU structures.

Education

National Taiwan University *Taipei, Taiwan*
M. Sc. in Applied Mathematical Sciences *Sep. 2015 – Jun. 2017*
- Supervisor: Prof. Weichung Wang

National Taiwan University *Taipei, Taiwan*
B. Sc. in Mathematics *Sep. 2011 – Jun. 2015*

Work Experience

VOCATIONAL

CKIP Lab, Institute of Information Science, Academia Sinica *Taipei, Taiwan*
RESEARCH ASSISTANT *Jul. 2017 – Present*
- Supervisor: Dr. Wei-Yun Ma
- Conducting researches of natural language processing and computational linguistics
  - Knowledge Embedding, Word Embedding
  - Named Entity Linking, Relation Extraction
  - Cluster Management and Maintenance
  - Web/Demo Design and Development

Thomas J. Watson Research Center, IBM Corporation *Yorktown Heights, NY, U.S.A*
INTERNSHIP *Jul. 2015 – Aug. 2015*
- Supervisor: Dr. I-Hsin Chung
- Conducting researches of high-performance parallel computing on hybrid CPU-GPU structures

MISCELLANEOUS

Institute of Applied Mathematical Sciences, National Taiwan University *Taipei, Taiwan*
RESEARCH ASSISTANT *Sep. 2013 – Aug. 2017*
- Supervisor: Prof. Weichung Wang
- Conducting researches of high-performance parallel computing on hybrid CPU-GPU structures
  - High-Performance Parallel Computing, Hybrid CPU-GPU Platform
  - Numerical Linear Algebra, Algorithm
  - Cluster Management and Maintenance

Department of Economics, National Taiwan University *Taipei, Taiwan*
RESEARCH ASSISTANT *Mar. 2016 – Aug. 2016*
- Supervisor: Prof. Semin Kim
- Conducting researches of ordinal versus cardinal voting rules

National Taiwan University *Taipei, Taiwan*
TEACHING ASSISTANT *2015 – 2017*
- Software Development for Computational and Data Science
- Computational Methods and Tools for Data Science
- High Performance Computing and Deep Learning
- Introduction to Computational Mathematics
- Introduction to Scientific Computing
- Numerical Linear Algebra
- Mathematic Software
- Computer Programming (2016)
- Computer Programming (2015)
- Calculus (A)
- Calculus (B)

Publications

12th Language Resources and Evaluation Conference (LREC'20)   *Marsélle, France*
Mu Yang, Chi-Yen Chen, Yi-Hui Lee, Qian-Hui Zeng, Wei-Yun Ma, Chen-Yang Shih, Wei-Jhih Chen   *May. 2020*
Headword-Oriented Entity Linking: A New Entity Linking Task with Dataset and Baseline

13th IEEE International Conference on Semantic Computing (ICSC'19)   *Newport Beach, CA, U.S.A*
Jhih-Sheng Fan, **Mu Yang**, Peng-Hsuan Li, Wei-Yun Ma   *Jan. – Feb. 2019*
HWE: Word Embedding with Heterogeneous Features

16th IEEE International Conference on Computer and Information Technology (CIT'16)   *Yanuca Island, Fiji*
Mu Yang, Ray-Bing Chen, I-Hsin Chung, Weichung Wang   *Dec. 2016*
Particle Swarm Stepwise Algorithm (PaSS) on Multicore Hybrid CPU-GPU Clusters

Master's Thesis, National Taiwan University   *Taipei, Taiwan*
Mu Yang, (Advisor: Weichung Wang)   *Jul. 2017*
Highly Scalable Parallelism of Integrated Randomized Singular Value Decomposition with Big Data Applications

Presentation

7th Asian Pacific Congress on Computational Mechanics (APCOM'19)   *Taipei, Taiwan*
Mu Yang, Dawei Chang, Weichung Wang, Su-Yuen Huang, Ting-Li Chen   *Feb. 2019*
Parallelized Integration of Multiple Random Sketches from Randomized Singular Value Decomposition with Multi-Level Pairwise Integration Method

9th SIAM Conference on Computational Science and Engineering (SIAM CSE'17)   *Atlanta, GA, U.S.A*
Mu Yang, Su-Yun Huang, Ting-Li Chen, Weichung Wang   *Feb. – Mar. 2017*
Parallel Implementations of Integrated Singular Value Decomposition (iSVD)

Selected Projects

CosmEL: Cosmetic Entity Linking   *2017 – 2019*
A novel entity linking project on cosmetic domain with dataset and baseline. This project is an industrial-academic project with PIXNET Corporation.

HWE: Heterogeneous Word Embedding   *2017 – 2018*
A general and flexible framework of word embeddings to incorporate each type (e.g. word-sense, part-of-speech, topic) of contextual feature for learning feature-specific word embeddings in an explicit fashion.

iSVD: Integrated Singular Value Decomposition Algorithm   *2015 – 2017*
A parallel low-rank approximate singular value decomposition solver using integrated randomized algorithm. Implemented for multinode hybrid CPU-GPU systems.

PaSS: Particle Swarm Stepwise Algorithm   *2013 – 2015*
A parallel stochastic search algorithm for information criterion variable selection problems. Implemented for multinode hybrid CPU-GPU systems.

HiS: Hierarchical Schur Solver   *2015 – 2016*
A direct linear solver exploiting the sparse structure of multilevel nested dissection matrix to maximize parallel scalability on multinode GPU clusters.

Honors & Awards

Mar. 2019 **3rd Place,** Formosa Grand Challenge (Chinese TOEFL-like listening comprehension QA)   *Taipei, Taiwan*
Feb. 2016 **Presentation Excellence**, 7th Taiwan-Japan Joint Workshop for Young Scholars in Applied Mathematics   *Tainan, Taiwan*
Fall 2011 **Top 1 Academic Excellence Award**, Department of Mathematics, National Taiwan University   *Taipei, Taiwan*

Skills

Programming	C/C++, Java, Python, Assembly
Libraries	MPI/OpenMP, LAPACK/MKL/Magma, CUDA, PyTorch/TensorFlow
Tools	Git, CMake, SQL, MATLAB, LaTeX
Web Skills	JavaScript, Vue, HTML5, CSS, SASS
Languages	Chinese, English