Mu YANG 楊慕

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Personal Information

- Email: muyang@iis.sinica.edu.tw
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Educational Qualification

- Master of Science at Institute of Applied Mathematical Sciences, National Taiwan University 2015 - 2017
- Bachelor of Science at Department of Mathematics, National Taiwan University 2011 - 2015

Work Experience

- Research Assistant to Dr. Wei-Yun Ma at Academia Sinica, 2017 - Present
  conducting researches of natural language processing
- Research Assistant to Professor Weichung Wang at National Taiwan University, 2013 - 2017
  conducting researches of parallel computing of large-scale hybrid CPU-GPU clusters
- Internship at IBM Thomas J. Watson Research Center 2015
- Research Assistant to Professor Semin Kim at National Taiwan University, 2016
  conducting researches of ordinal versus cardinal voting rules
- Teaching Assistant at National Taiwan University, 2015 - 2017
  Software Development for Computational and Data Science, High Performance Computing and Deep Learning, Introduction to Computational & Data Sciences, Introduction to Scientific Computing, Numerical Linear Algebra, Introduction to Computational Mathematics, Computer Programming, Mathematic Software, Calculus

Publications

- Mu Yang, 2017
  "Highly Scalable Parallelism of Integrated Randomized Singular Value Decomposition with Big Data Applications",
  Master's Thesis, National Taiwan University
- Mu Yang, Ray-Bing Chen, I-Hsin Chung, and Weichung Wang, 2016
  "Particle Swarm Stepwise Algorithm (PaSS) on Multicore Hybrid CPU-GPU Clusters",
  2016 IEEE International Conference on Computer and Information Technology (CIT)

Conferences

- Mu Yang, Su-Yun Huang, Ting-Li Chen, and Weichung Wang, 2017
  "Parallel Implementations of Integrated Singular Value Decomposition (iSVD)",
  2017 SIAM Conference on Computational Science and Engineering (CSE)
- Mu Yang, Ray-Bing Chen, I-Hsin Chung, and Weichung Wang, 2016
  "Particle Swarm Stepwise Algorithm (PaSS) on Multicore Hybrid CPU-GPU Clusters",
  2016 IEEE International Conference on Computer and Information Technology (CIT)
- Mu Yang and Weichung Wang, 2016
  "A Parallel and Hybrid Sparse Linear System Solver",
  7th Taiwan-Japan Joint Workshop for Young Scholars in Applied Mathematics

Awards

- "Presentation Excellence Award", 2016
  7th Taiwan-Japan Joint Workshop for Young Scholars in Applied Mathematics

Projects Undertaken

- CosmEL: Cosmetic Entity Linking — Designer, Researcher and Developer
  An industrial-academic project with PIXNET. Cosmetics domain entity linking.
- Integrated Singular Value Decomposition (iSVD) — Researcher and Developer
  A low-rank approximate singular value decomposition solver using integrated randomized algorithms. It is implemented for large-scale multicore hybrid CPU-GPU clusters.

- Hybrid Hierarchical Schur (hHiS) Solver — Designer, Researcher, and Developer
  A parallel linear system solver for sparse symmetric positive definite matrices using direct/iterative methods on each part of k-way vertex partitioning to maximize parallel scalability on multinode systems.
- Hierarchical Schur (HiS) Solver — Designer, Researcher, and Developer
  A direct linear solver exploiting the sparse structure of multilevel nested dissection matrix to maximize parallel scalability on multinode hybrid CPU-GPU clusters.
- Particle Swarm Stepwise (PaSS) Algorithm — Designer, Researcher, and Developer
  A parallel stochastic search algorithm for information criterion variable selection problems on multicore hybrid CPU-GPU clusters.
- Ordinal Versus Cardinal Voting Rules — Programmer
  A research about the performance and incentive compatibility of voting rules in a Bayesian environment. We use MATLAB to generate and analyze mathematical models.
- N-Body Simulation Using FMM with CUDA GPU — Designer, and Developer
  An n-body simulation using fast multipole method with CUDA GPU acceleration.
- The Matrix Project — Designer, Researcher, and Developer
  A basic linear algebra library for matrix operations using assembly language acceleration.

Skills

- Subjects: Mathematics, Applied Mathematics, Programming, Numerical Analysis, Numerical Application, Calculus, Linear Algebra, Numerical Linear Algebra, Graph Theory, Numerical Differential Equation, Machine Learning, Algorithms, Data Analysis, Computer Science, Simulations, Mathematical Model
- Programming Languages: C/C++ (Familiar with C++11), Java, CUDA, Assembly, Python, MATLAB, Bash Script, HTML, CSS, LaTeX
- Programming Tools: Linux, Git, CMake, MPI, OpenMP, Intel MKL, PARDISO, MUMPS, PETSc, METIS, SuiteSparse, Eigen
- Programming Skills: Parallel Programming, Multicore/Manycore Systems Programming, High-Performance Computing Programming

Language

- Chinese (Native Proficiency)
- English (Limited Working Proficiency)