Jia Li

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Education

University of Michigan **Ann Arbor, MI**

Ph.D. Student in Physics and Scientific Computing, GPA: 4.0 *2015 – Present*

Thesis Topic: Numerical Methods for Strongly Correlated Electrons in Realistic Materials

Relevant Courses: Applied Parallel Programming with GPUs, Machine Learning, Numerical Linear Algebra, Particle Methods in Scientific Computing, Computational Data Science.

University of Science and Technology of China (USTC) **Hefei, China**

B.Sc. in Physics w/ Honorary Rank, GPA: 3.93 *2011 – 2015*

Relevant Courses: Algorithms, Operational Research, Computer Programming in C, Data Structures and Database.

Experience

Google LLC **(Remote) Seattle, WA**

Software Engineer Intern, Chrome *2020 Jun – Aug*

- Designed and implemented the Chrome Machine Learning (ML) Service — a secure sandbox in Chrome for on-device evaluations of ML models.
- Enabled asynchronous model prediction using the ML Service code for the Slow Page Prediction feature in Chrome.
- Initiated the procedure to integrate TensorFlow Lite (TFLite) library and 7+ dependencies into Chrome by prototyping a working GN build.
- Prototyped the TFLite integration in the Chrome ML Service; Produced necessary data for the Chrome third-party reviewing process for TFLite.
- Collaborated with the other intern in the research project on ML applications in Chrome and provided essential technical support.
- Built an end-to-end demo on Android to showcase on-device ML in Chrome for the final presentation.

University of Michigan **Ann Arbor, MI**

Graduate Student Research Assistant *2016 – Present*

- Designed, implemented and optimized a novel diagrammatic Monte Carlo algorithm for realistic quantum chemical systems.
- Coordinated the development of an sampling method for efficient representations of Green's functions among collaborators in Europe, Japan and US.
- Provided benchmark data and data analysis in 2 major collaborative projects, each involving 10+ research groups.
- Published 5 papers in peer-reviewed journals; presented in 8+ contributed poster sessions, 2 major conferences and 1 invited seminar.
- Wrote parallel application codes in C++ and Julia; performed data analysis and visualization using Python and Julia on a daily basis.

Institute of Physics, Chinese Academy of Sciences **Beijing, China**

Undergraduate Research Intern *2013*

- Diagnosed and identified a driver issue in the USB module of a digital signal processing (DSP) unit for a scanning-tunneling microscope (STM).
- Rewrote part of the poorly-documented USB driver in collaboration with another undergraduate intern.

Technical Skills

Programming Languages (Fluent): C/C++, Python, Julia, shell script, LaTeX.

Programming Languages (Familiar): SQL, FORTRAN, HTML/CSS/Javascript, PHP, MATLAB, Mathematica.

Development Skills: Test Driven Development, Continuous Integration, System Development, Concurrent Programming, Parallel Programming for CPU/GPU.

Honors and Awards

2018: MICDE Fellowship *The Michigan Institute for Computational Discovery and Engineering, University of Michigan*

2017: ICAM Junior Travel Award *for Jülich Autumn School on Correlated Electrons*

2015: Physics Department Fellowship *Department of Physics, University of Michigan*

2014: Guo Moruo Scholarship (Highest honor for a USTC student, top 1%) *USTC*

2013: Liu Li Leadership Scholarship *USTC*

2012: National Scholarship (top 2%) *USTC*

2011: Outstanding Freshman Scholarship *USTC*

Publications

- **J. Li**, M. Wallerberger, E. Gull: *Diagrammatic Monte Carlo method for impurity models with general interactions and hybridizations*, Physical Review Research **2**, 033211 (2020).
- K. T. Williams, Y. Yao, **J. Li**, L. Chen, H. Shi, M. Motta, C. Niu, U. Ray, S. Guo, R. J. Anderson, J. Li, L. N. Tran, C.-N. Yeh, B. Mussard, S. Sharma, F. Bruneval, M. van Schilfgaarde, G. H. Booth, G. K.-L. Chan, S. Zhang, E. Gull, D. Zgid, A. Millis, C. J. Umrigar, and L. K. Wagner: *Direct Comparison of Many-Body Methods for Realistic Electronic Hamiltonians*, Physical Review X **10**, 011041 (2020).
- **J. Li**, M. Wallerberger, N. Chikano, C.-N. Yeh, E. Gull, and H. Shinaoka: *Sparse Sampling Approach to Efficient Ab Initio Calculations at Finite Temperature*, Physical Review B **101**, 035144 (2020).
- M. Wallerberger, S. Iskakov, A. Gaenko, J. Kleinhenz, I. Krivenko, R. Levy, **J. Li**, H. Shinaoka, S. Todo, T. Chen, X. Chen, J. P. F. LeBlanc, J. E. Paki, H. Terletska, M. Troyer, and E. Gull: *Updated Core Libraries of the ALPS Project*, arXiv:1811.08331 (submitted to Computational Physics Communications).
- T. N. Lan, A. Shee, **J. Li**, E. Gull, and D. Zgid: *Testing Self-Energy Embedding Theory in Combination with GW*, Physical Review B **96**, 155106 (2017).
- M. Motta, D. M. Ceperley, G. K.-L. Chan, J. A. Gomez, E. Gull, S. Guo, C. A. Jiménez-Hoyos, T. N. Lan, **J. Li**, F. Ma, A. J. Millis, N. V. Prokof'ev, U. Ray, G. E. Scuseria, S. Sorella, E. M. Stoudenmire, Q. Sun, I. S. Tupitsyn, S. R. White, D. Zgid, and S. Zhang: *Towards the Solution of the Many-Electron Problem in Real Materials: Equation of State of the Hydrogen Chain with State-of-the-Art Many-Body Methods*, Physical Review X **7**, 031059 (2017).

Presentations

2019: Invited seminar talk in Saitama University *Saitama, Japan*

2019: Contributed talk in APS March Meeting *Boston, MA*

2018: Contributed talk in APS March Meeting *Los Angelos, CA*

2016 – 2019: 8 contributed poster presentations in summer schools and symposiums.

Leadership Experience

2015 – Present: Chair, Department of IT Support, USTC Alumni Foundation.

2015 – 2020: Member of the Executive Board, USTC Alumni Foundation.

2013 – Present: Chair, USTC-Zhengzhou No. 1 High School Alumni Association.