Jinshu LIU

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Education

Virginia Tech   **Jun 2022 – present**
PhD in Computer Science   *Blacksburg, VA*

University of Rochester   **Jan 2021 – May 2022**
Master of Science in Computer Science, GPA: 3.93/4   *Rochester, NY*

Xi'an Jiaotong University   **Aug 2014 – Jun 2019**
Bachelor of Engineering in Energy and Power Engineering, GPA: 88.6/100   *Xi'an, Shaanxi, China*

Publications

C2 **tsupy: Dynamic Climate Network Analysis Library. Jinshu Liu**, Yunlong Xu, Fatemeh Nargesian, Gourab Ghoshal. Proceedings of ACM CIKM, Demo Track, Atlanta GA, October 2022.

C1 **TSUBASA: Climate Network Construction on Historical and Real-Time Data.** Yunlong Xu=, **Jinshu Liu**=, Fatemeh Nargesian. Proceedings of ACM SIGMOD, Philadelphia PA, June 2022.

J1 **Multistage auto-ignition of undiluted methane/air mixtures under engine-relevant condition.** Yingjia Zhang, Wuchuan Sun, Wenlin Huang, Xiaokang Qin, **Jinshu Liu**, Bensi Dong, Yongkai Quan, Zuohua Huang. Journal of Chemical Research and Application, 2019.

Research Experiences

Study of Pairwise Time Series Network Construction

Advisor: Fatemeh Nargesian | University of Rochester

- Applied Trill (a high-performance data stream processing library) integrated with C# to ingress and process both real-time and historical data for climate network construction
- Conducted experiments with Golang to implement parallel version of the algorithms to show the scalability
- Implemented both exact calculation and approximation algorithms with Trill and Golang to construct climate network with both statically historical data and dynamically incoming data
- Participated in proposing methods for Pearson coefficient calculation with DFT (Discrete Fourier Transform) and Basic Windows to decrease query time of climate network construction
- Built a Python package for dynamic climate network construction

Study of Auto-ignition and Chemical Kinetics of Methane/air Mixtures

Advisor: Yingjia Zhang | Xi'an Jiaotong University

- Optimized the Aramco 2.0 combustion mechanism according to CH concentration from a shock tube experiment in order to predict CH concentration more accurately
- Conducted mechanism reduction of the detailed chemical mechanism above by using DRGEP (directed relation graph with error propagation) in Chemkin

Work Experiences

Software Developer Intern | ANSYS   **Jun 2019 – Sept 2019**

- Proposed and implemented methods to calculate total running time of thermal analysis and simulation on semiconductors
- Developed GUI features on the thermal analysis module of the software to provide users with thermal properties of different wires and layers of chips under 2D thermal analysis views
- Fixed defects on the software GUI, including window freezing, button clicking issues and output data loss
- Discovered and solved memory leak problems in C++ code base
- Cleaned up the redundancy code in both C++ code base and Python code base

Awards

Geely Auto 1st Class Scholarship

Peng Kang Scholarship

Skills

- **Programming Languages**: Python, C++, C, Java, Golang, C#, OCaml, Ruby, JavaScript, Fortran, Matlab, Scheme