YAFAN HUANG

⋄ Department of Computer Science ⋄ University of Iowa ⋄ yafan-huang@uiowa.edu

CURRENT POSITION

University of Iowa   *2021-curr.*
Department of Computer Science
PhD Student

Argonne National Laboratory   *2021-curr.*
Mathematics and Computer Science Division
Research Intern

RESEARCH INTERESTS

HPC Fault Tolerance, Lossy Compression, Machine Learning Application

EDUCATION

University of Iowa   *2021-curr.*
PhD of Computer Science
Advisor: Dr. Guanpeng Li

Huazhong University of Science and Technology   *2018-2021*
MS of Computer Science
Advisor: Dr. Feng Zhao

Hunan University   *2014-2018*
Bachelor of Software Engineering

RESEARCH PUBLICATIONS

Conference Papers

· *Sentinel: Hardening Selective Protection across Multiple Program Inputs for HPC Applications*
  Yafan Huang, Shengjian Guo, Sheng Di, Guanpeng Li, Franck Cappello
  Submitted to PPoPP'22
· *Rumor Detection on Social Media with Out-In-Degree Graph Convolutional Networks*
  Shihui Song, **Yafan Huang**, Hongwei Lu
  SMC'21: IEEE International Conference on Systems, Man, and Cybernetics

Journal Papers

· *Path-enhanced Explainable Recommendation with Knowledge Graphs*
  Yafan Huang, Feng Zhao, Xiangyu Gui, Hai Jin
  World Wide Web Journal (WWWJ), 2021, 21 pages
· *Dynamic Entity-based Named Entity Recognition Under Unconstrained Tagging Schemes*
  Feng Zhao, Xiangyu Gui, **Yafan Huang**, Hai Jin, Laurence T. Yang
  IEEE Transactions on Big Data (TBD), 2020, 15 pages

RESEARCH EXPERIENCE

Hardening Selective Protection across Multiple Inputs for HPC Applications   *2021-curr.*

· Investigated the loss of SDC coverage issue in selective protection techniques.
· Analyzed the root causes of the issue via fault injection experiments.
· Proposed a novel compiler framework, *Sentinel*, that combines static and dynamic program analysis techniques to harden selective protection across multiple inputs.

Modeling Lossy Compression Error Propagation *2020-curr.*

· Designed a fault injector that simulates various lossy compression errors in HPC programs.
· Conducted a systematic feature engineering to extract characteristics of lossy compression error propagation via static and dyanmic program analysis techniques.
· Trained a machine-learning-based model that predicts the best lossy compression configurations which minimize lossy compression error propagation in programs.

GPU Accelerated Natural Language Processing *2019-2020*

· Proposed *PeRN* recommendation algorithms with knowledge graphs to enhance explainability and reduce cold start issue.
· Implemented *OID-GCN* to detect Twitter rumors under imbalanced graph data.
· Leveraged GPU to accelerate named entity recognition under unconstrained tagging schemes.

WORK EXPERIENCE

Argonne National Laboratory *2021-Curr.*
Research Intern *Lemont, IL*

University of Iowa *2020-Curr.*
Research Assistant *Iowa City, IA*

Huazhong University of Science and Technology *2018-2020*
Research Assistant *Wuhan, China*

Eastman Kodak *2017-2018*
Software Engineer *Shanghai, China*

PROFESSIONAL SERVICE

Reviewer   SMC (2021)
Subreviewer   ISSRE (2021), PRDC (2021), QRS (2021), HPCC (2021)