

Research Areas

- **Foundation Models:** GPTs, Flamingo, Stable Diffusion, CoDi.
- **Reinforcement Learning:** Hierarchical RL, Offline RL
- **Deep Learning:** Adversarial Examples, Neural Architecture Search
- **Machine Learning:** Fuzzy Clustering, Genetic Algorithm

Work Experience

- *Software Engineer II* **Synopsys**, Seattle, WA Worked in Language Frontier Team Feb. 2016 ~ June 2017
 - Enabled [Coverity](#) to support JavaScript ES 6 and Swift 3 by translating their abstract syntax trees into a unified structure.
 - Implemented a SpiderMonkey-based minification detection to sort out minified JavaScript files. (**C++/Linux**)
- *Software Engineer* **Intel Security**, Denver, CO Worked in SaaS Email Protection Team July 2014 ~ Jan. 2016
 - Worked with QA leader to write test plans for new features for the [SaaS Email Protection](#) product.
 - Developed front-end and back-end test automation for features and hot fixes. (**Perl/Python/Linux/WebDriver**)

Research Experience

- University of South Carolina, Columbia, SC, USA Working with Dr. Qi Zhang May 2022 ~ Present
 - Working on the design of hierarchical agent using Flamingo, a vision-language model, to enable the [agent](#) to effectively propose a critical subgoal and discover a pre-trained promising skill for solving it. (**Python/Pytorch/Transformers**)
- University of South Carolina, Columbia, SC, USA Worked with Dr. Pooyan Jamshidi Jan. 2019 ~ May 2022
 - Worked on [NASA RASPBERRY SI](#) project to implement a MAPE-K based [autonomy](#) to enable the Europa Mission lander in the [OceanWATERS](#) testbed quickly self-adapt to uncertainties. (**C++/Python/ROS/PLEXIL/Prism/Docker**)
 - Created a many-weak-defense based framework, [ATHENA](#), to fight against adversarial examples (**Python/Keras**)
- University of South Carolina, Columbia, SC, USA Worked with Dr. Qiang Zeng Aug. 2018 ~ Dec. 2018
 - Built a system to detect audio adversarial examples based on similarity dispersion of its transcriptions recognized among different automatic speech recognition systems. (**Python/Linux**)
- Michigan Technological University, Houghton, MI, USA Worked with Dr. Timothy Havens Sept. 2012 ~ April 2014
 - Proposed several heuristic algorithms for fuzzy community detection by applying convex optimization, fuzzy k-mean clustering and genetic algorithm to maximize modularity of found partition. (**MATLAB/C++**)

Education

- PhD in Computer Science at University of South Carolina, Columbia, SC, USA Aug. 2018 ~ Present
- M.S. in Computer Science at Michigan Technological University, Houghton, MI, USA Sept. 2011 ~ May 2014
- M. Eng. in Software Engineering at Tongji University, Shanghai, China Sept. 2008 ~ June 2011
- B.S. in Information Science (**Honor Program**) at China Agricultural University, Beijing, China Sept. 2005 ~ June 2008

Publications

- Sai Krishna Revanth Vuruma, Ashley Margetts, Jianhai Su, Faez Ahmed, Biplav Srivastava. "[From Cloud to Edge: Rethinking Generative AI for Low-Resource Design Challenges](#)". AAAI'24 Bridge Program on AI for Design.
- Jianhai Su, Qi Zhang. "[Subgoal Proposition Using a Vision-Language Model](#)". 2nd Workshop on Language and Robot Learning (LangRob): Language as Grounding (2023).
- Md Shahriar Iqbal, Jianhai Su, Lars Kotthoff, Pooyan Jamshidi. "[FlexiBO: A Decoupled Cost-Aware Multi-Objective Optimization for Deep Neural Networks](#)". Journal of Artificial Intelligence Research (2023).
- Iqbal, M.S., Su, J., Kotthoff, L. and Jamshidi, P., 2022, April. [Getting the Best Bang For Your Buck: Choosing What to Evaluate for Faster Bayesian Optimization](#). In First Conference on Automated Machine Learning (Late-Breaking Workshop).
- Ying Meng, Jianhai Su, Jason O'Kane, Pooyan Jamshidi. "[Ensembles of Many Diverse Weak Defenses can be Strong: Defending Deep Neural Networks Against Adversarial Attacks](#)". CoRR abs/2001.00308 (2020).
- Qiang Zeng, Jianhai Su, Chenglong Fu, Golam Kayas, Lannan Luo, Xiaojiang Du, Chiu Chiang Tan, Jie Wu. "[A Multiversion Programming Inspired Approach to Detecting Audio Adversarial Examples](#)". DSN 2019: 39-51.
- Su, J. and Havens, T.C., 2014. [Quadratic program-based modularity maximization for fuzzy community detection in social networks](#). IEEE Transactions on Fuzzy Systems, 23(5), pp.1356-1371.