

Yongzhe Huang

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Education

The Pennsylvania State University

Ph.D. candidate in Computer Science

State College, PA

Aug. 2019 – now

The Pennsylvania State University

M.S. in Computer Science

State College, PA

Aug. 2017 – May 2019

Hongkong Baptist University

B.S. in Computer Science

Aug. 2013 – May 2017

Projects

KSplit | *Git, Linux Kernel, LLVM, C++*

May.2018 – now

- Develop static analyses to automate the process of isolating Linux device driver from kernel with C++/LLVM/clang.

Infer pointer alias relation with GNN | *LLVM, C++, python3, tensorflow*

May.2020 – now

- Develop a graph representation that is suitable for learning various relationships between program variables, using LLVM, python3. This work is based on the Neural Code Comprehension paper.
- Help building a training/testing sets from real world code base.

Program Partitioning with RL Agent | *C++, LLVM, python3, OpenAI gym, Git*

Aug.2019 – Dec.2019

- Implement a reinforcement learning agent that use monte carlo tree search algorithm to identify program separation boundaries that meet user's specification with python3/OpenAI gym/C++/LLVM.

Program Dependency Graph in LLVM | *C++, LLVM, Git, Docker, Google Test*

May.2018 – Aug.2019

- Develop data/control dependence graph using LLVM.
- Develop unit tests using google test framework.

Ruby to Java Transcompiler | *Ruby, Java, Groovy, antlr4,*

Aug.2016 – May.2017

- Write a Ruby Object Model using Groovy.
- Generate Ruby lexer and parser from antlr4 and use AST listener to implement a Ruby to Java transcompiler.

Publications

- **Yonzhe Huang**, Vikram Narayanan, Kaiming Huang, David Detweiler, Gang Tan, Trent Jaeger, Anton Burtsev. KSplit: Automating Device Driver Isolation. In OSDI, 2022 (To appear).
- Kaiming Huang, **Yongzhe Huang**, Mathias Payer, Zhiyun Qian, Jack Sampson, Gang Tan, Trent Jaeger. The Taming of the Stack: Isolating Stack Data from Memory Errors. In NDSS, 2021.
- Vikram Narayanan, **Yongzhe Huang**, Gang Tan, Trent Jaeger and Anton Burtsev. Lightweight kernel isolation with virtualization and VM functions. In *16th ACM SIGPLAN/SIGOPS International Conference on Virtual Execution Environments(VEE)*, 2020. **Best Paper Award**.
- Shen Liu, Dongrui Zeng, **Yongzhe Huang**, Frank Capobianco, Stephen McCamant, Trent Jaeger and Gang Tan. Program-mandering: Quantitative Privilege Separation. In *Proceedings of the 26th ACM Conference on Computer and Communications Security(CCS)*, 2019.

Work Experience

Kudelabs Technology | *Git, Ruby On Rails, Javascript, HTML/CSS*

May. 2016 – Sep.2016

- Reimplement company's official website using Ruby on Rails/Javascript.
- Develop a behavior tracking script for web trading website using Ruby on Rails/javascript.

Technical Skills

Languages: Java, Python3, C/C++, JavaScript, HTML/CSS, R, Ruby, Groovy

Libraries: Tensorflow, PyTorch, OpenAI gym, pandas, NumPy

Developer Tools: Vim, Git, Docker, Google Cloud Platform, VS Code, PyCharm