Xuankang Lin

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https://github.com/XuankangLin/

Education

- **Purdue University** West Lafayette, IN
  M.S. in Computer Science *Expected: 12/2021*
  - Graduate Research Assistant. Applied formal verification to neural network safety reasoning.
  - Graduate Teaching Assistant for graduate "Operating Systems" and "Distributed Systems" courses.
  - GPA 3.93 / 4.0. $A+$ in Compiler, OS, Software Engineering, and Programming Languages courses.
- **Tongji University** Shanghai, China
  B.E. in Software Engineering *06/2013*
  - GPA: 4.69 / 5.0, top 2.4%. Outstanding Graduate of Shanghai in 2013.
  - Exchange student at Rose-Hulman Institute of Technology in fall 2012. GPA 4.0 / 4.0.

Work Experience

- **Intern at Intel China** Shanghai, China
  Software & Solutions Group *12/2012 – 06/2013*
  - Improved Cocos2d-html5's audio engine to play multiple effects simultaneously on previous unsupported devices using Web Audio API. Code merged into official repository.
  - Optimized Cocos2d-html5's high-resolution rendering on devices with Retina screens.

Selected Projects **Github @XuankangLin**

- **ART** (Paper accepted in FMCAD'2020) *02/2019 – 05/2020*
  - Generated safe-by-construction neural networks with mild accuracy impact by combining over-approximation and abstraction refinement techniques.
  - Implemented in PyTorch, publicly available on Github, accessible on DockerHub.
- **DiffAbs** *02/2019 – 08/2020*
  - Realized abstract domains for reachable output set over-approximation of neural networks, including Interval and DeepPoly domains.
  - Implemented in PyTorch, publicly available on Github and PyPI.
- **Learning Latent Memory Models from Litmus Tests** *10/2016 – 04/2017*
  - Proposed a new approach to learn memory models from weakest executions of litmus tests using Conditional Random Fields or Decision Tree.
  - Model simulator adapted in OCaml, learning model implemented in Scala. More details in this technical report, code publicly available on Github.

Skills

Advanced: Python, PyTorch, C/C++, Git **Proficient**: Scala, Java, Linux, Docker, OCaml

Publications

Lin, Xuankang, et al. "ART: Abstraction Refinement-Guided Training for Provably Correct Neural Networks." *2020 Formal Methods in Computer Aided Design (FMCAD)*. IEEE, 2020.