Aaditya Naik

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EDUCATION

University of Pennsylvania
Ph. D., Computer and Information Science   *Sept. 2020 – Present*

NMIMS Mukesh Patel School of Tech. Mgmt. and Engg. (MPSTME)
B. Tech., Computer Engineering   *July 2016 – May 2020*

PUBLICATIONS

* Co-first authorship

Sporq: An Interactive Environment for Exploring Code Using Query-by-Example. 📄
Aaditya Naik, Jonathan Mendelson, Nathaniel Sands, Yuepeng Wang, Mayur Naik, Mukund Ragothaman
in UIST '21

Example-Guided Synthesis of Relational Queries. 📄
Aalok Thakkar, Aaditya Naik, Nate Sands, Mukund Raghothaman, Mayur Naik, Rajeev Alur
in PLDI '21

GenSynth: Synthesizing Datalog Programs without Language Bias. 📄
Jonathan Mendelson*, Aaditya Naik*, Mukund Ragothaman, Mayur Naik
in AAAI '21

Code2Inv: A Deep Learning Framework for Program Verification. 📄
Xujie Si*, Aaditya Naik*, Hanjun Dai, Mayur Naik, Le Song
in CAV '20

WORK EXPERIENCE

University of Pennsylvania
Research Intern   *Jan. 2019 – May 2020*
- Worked on a project *Code2Inv* to make it compatible with various input representations including C programs and CHC constraints.
- Drew a comprehensive study on the state-of-the-art software checkers.
- Implemented an SSA transformation for *Code2Inv* benchmarks using the *Clang C++ API*.

GetParking
Summer Intern   *May 2018 – Jul. 2018*
- Used transfer learning to build a deep learning model based on the InceptionV3 architecture to identify the make and model of a car given its image.
- Thoroughly reviewed existing state-of-the-art image classification models.

TEACHING EXPERIENCE

University of Pennsylvania
Teaching Assistant   *May 2020 – Present*
- TA for *MCIT CIS 547: Software Analysis* for Summer and Fall 2020 which covers concepts including static and dynamic analyses, symbolic executors and automated debugging.

ACM Student Chapter, MPSTME
Instructor   *Sep. 2019*
- Taught core C concepts to college freshman students over a 4 day workshop.

Projects

GenSynth

gensynth.cis.upenn.edu

A genetic algorithm which synthesizes Datalog queries given a set of input and output data without requiring language biases.

Code2Inv

code2inv.org

A general end-to-end deep reinforcement learning framework which learns a valid loop invariant for any given verification task in a manner similar to how a human expert would learn the invariant.

Skills

Programming Languages : Python, C/C++, Bash, Java

Tools : Git, LaTeX, Docker

Miscellaneous : LLVM/Clang APIs, PyTorch, Keras, Z3

References

Mayur Naik (PhD Advisor)
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