

# Aidan Yang

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## EDUCATION

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- **Carnegie Mellon University** Pittsburgh, PA  
• *PhD in Software Engineering. Advisors: Vincent Hellendoorn, Ruben Martins, and Claire Le Goues* Expected: 2026
  - Research: program synthesis, program analysis, machine learning
- **Queen's University** Kingston, ON  
• *BEng, Computer Engineering and Mathematics* 2021
  - Thesis: modeling the loss function of generative adversarial networks (GANs) with Rényi information measures

## RESEARCH

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- **Carnegie Mellon University** Pittsburgh, PA  
• *Undergraduate Researcher (REUSE). Advisors: Ruben Martins and Claire Le Goues* Summer 2020
  - Built a program synthesis pipeline for refactoring data-science APIs (e.g., Tensorflow, Pytorch, Dplyr)
  - Generated satisfiability modulo theories (SMT) constraints using NLP and deep learning models
- **Queen's University** Kingston, ON  
• *Undergraduate Researcher. Advisors: Ying Zou and Ahmed E. Hassan* May 2018 - May 2020
  - Performed a novel empirical study on 69,851 releases and 67.7 million user reviews for 2,232 apps
  - Built NLP models to establish links between evolving software artifacts achieving 79.8% accuracy

## INDUSTRY

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- **Microsoft Research** Redmond, WA  
• *Machine Learning Research Science Intern* Summer 2022
  - Conducted research as part of the MSR RiSE group (programming languages, software engineering and formal methods for high-performance computing)
  - Implemented the AlphaZero reinforcement learning model on a custom combinatorial problem space for synthesizing Nvidia collective communication algorithms
  - Sped up the previous Monte Carlo Tree Search algorithm by 70% by achieving 80% more GPU utilization on an Azure DGX-1 cluster
- **AMD** Markham, ON  
• *Software Development Engineer* May 2019 - May 2020
  - Developed High Dynamic Range (HDR) and Freesync features for GPU drivers
  - Completed a data pipeline linking monitor specifications to AMD driver UI, automating 5% of QA engineers's manual testing

## SELECTED PUBLICATIONS

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- **An Empirical Study on Release Notes Patterns of Popular Apps in the Google Play Store**  
Aidan Z.H. Yang, Safwat Hassan, Ying Zou, Ahmed E. Hassan  
Journal of Empirical Software Engineering (EMSE), 2021
- **SOAR: A Synthesis Approach for Data Science API Refactoring**  
Ansong Ni, Daniel Ramos, Aidan Z.H. Yang, Ines Lynce, Vasco Manquinho, Ruben Martins, Claire Le Goues  
IEEE International Conference on Software Engineering (ICSE), pp. 112-124, 2021
- **Predicting Co-Changes between Functionality Specifications and Source Code in Behavior Driven Development**  
Aidan Z.H. Yang, Daniel Alencar da Costa, Ying Zou  
IEEE/ACM 16th International Conference on Mining Software Repositories (MSR), pp. 534-544, 2019

## TEACHING

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- **Queen's University**

Kingston, ON

*TA for Data Structures and Algorithms under Ying Zou*

*Winter 2018*

## PRESENTATIONS

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- SOAR: Synthesis for Open-Source API Refactoring. Presented at: Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH 2020) Student Research Competition. November 2020
- SOAR: A Synthesis Approach for Data Science API Refactoring. Presented at: Carnegie Mellon University - Institute for Software Research. August 2020
- Predicting Co-Changes between Functionality Specifications and Source Code in Behavior Driven Development. Presented at: International Conference on Mining Software Repositories (MSR). May 2019

## AWARDS

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- Second Place at Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH 2020) Student Research Competition
- SIGSOFT CAPS Student Travel Award for ICSE 2019

## PROGRAMMING SKILLS

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- **Languages:** Python, C++, R, SQL
- **Technologies:** Python PANDAS and Numpy, TensorFlow, PyTorch, PostgreSQL