Yewen (Evan) Pu
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EDUCATION

Massachusetts Institute of Technology

PhD. Computer Science, Sept 2019

- Research Area: Active Learning, Program Synthesis, Imitation Learning
- Advisor: Armando Solar-Lezama, Leslie P. Kaelbling

University of California: Berkeley

B.A. Computer Science, Dec 2011

B.A. Mathematics, Dec 2011, With High Honor

RESEARCH

Write, Execute, Assess: Program Synthesis with a REPL
A neural program synthesizer that emulates the trial-and-error process of programming with an interpreter that executes the code written so-far.
https://arxiv.org/abs/1906.04604 *NeurIPS 2019*
K Ellis*, M Nye*, Yewen Pu*, F Sosa*, J Tenenbaum, A Solar-Lezama

Verifiable Reinforcement Learning via Policy Extraction
From an expert policy implemented with a neural network, extract a decision tree policy which can be verified against a modeled environment.
https://arxiv.org/abs/1805.08328 *NIPS 2018*
Osbert Bastani, Yewen Pu, Armando Solar-Lezama

Learning to Select Examples for Program Synthesis
From a big dataset of input-output examples, our approach selects a representative subset to give to a combinatorial synthesizer, reducing overhead cost while preserving correctness.
https://arxiv.org/abs/1711.03243 *ICML 2018, (Long Oral)*
Yewen Pu, Zachery Miranda, Armando Solar-Lezama, Leslie Pack Kaelbling

InverseCSG: automatic conversion of 3D models to CSG trees
From a high resolution triangle-mesh 3D rendering, we recover the underlying constructive-solid-geometry representation by combining geometric pre-processing and program synthesis.
https://dl.acm.org/citation.cfm?id=3275006 *Siggraph Asia 2018*
Tao Du, Jeevana Priya Inala, Yewen Pu, Andrew Spielberg, Adriana Schulz, Wojciech Matusik, Armando Solar-Lezama

Learning to Acquire Information
We tackle the problem of active learning in the face of complex hypothesis space by learning inter-relations between observations instead, bypassing the complex hypothesis space.
https://arxiv.org/abs/1704.06131 *UAI 2017*
Yewen Pu, Leslie Pack Kaelbling, Armando Solar-Lezama

sk_p: A Neural Program Corrector for MOOCs
We correct a program by altering (via replacement, insertion, deletions) statements so that the resulting program has fragments of codes that "look like" that of a correct program.
https://arxiv.org/abs/1607.02902 *OOPSLA 2016 workshop*
Yewen Pu, Karthik Narasimhan, Armando Solar-Lezama, Regina Barzilay

PAST JOBS

Massachusetts Institute of Technology

Postdoc Researcher **Sept 2019 –**

- Continuing exploring methods of program synthesis in the realm of computer-aided designs and active learning in the realm of question induction.

Learnable.ai

Machine Learning Advisor **May 2018 –**

- Task: Oversee the grading system targeting Chinese math exams in middle-school. Input: scanned hand-written student solution; Output: score it against the ref. solution.

MicroSoft

Research Intern **June 2018 – August 2018**

- Department: Microsoft Research Redmond
- Project: Program synthesis with syntactic and semantic contexts

Google

Software Engineer Intern **June 2013 – August 2013**

- Department: Google Advertisement
- Project: Evaluation of features that predicts conversion of customers

University of California: Berkeley

Undergraduate Researcher, U.C. Berkeley Par Lab **March 2010 – June 2012**

- Area of Research: Synthesis of software programs from user specifications
- Adviser: Ras Bodík, `http://www.cs.berkeley.edu/~bodik/`

Team Member, U.C. Berkeley Overmind **June 2010 – Sept 2010**

- Project: Designed AI modules for the Overmind, an agent that plays Starcraft.
- Highlights: Winner of AIIDE 2010 StarCraft AI Competition, coverage by Ars Technica.
- Website: `http://overmind.cs.berkeley.edu/`

GENERAL

Programming

- Currently: PyTorch, TensorFlow, Google Cloud
- Have developed in past: Javascript, Java, Julia, C++, Scala, Lisp
- Sufficient Familiarities: Web Stack (front / back ends), Android / iOS

Projects

- a dataset of manually collected 1000 hand drawn sketches of pineapples: `https://github.com/evantheboucny/pineapples`
- Dota 2 heros semantic embedding: `https://github.com/evantheboucny/dota_hero_semantic_embedding`

Blogs

- Understanding OpenAI Five: `https://medium.com/@evantheboucny/understanding-openai-five-16f8d177a957`
- Adversary, Attractor, Astonishment: `https://medium.com/@evantheboucny/adversary-attractor-astonishment-cea801d761`

PERSONAL

I enjoy playing and composing music on my guitar.

WEBSITE

`www.mit.edu/~yewenpu`