# Curriculum Vitae

Yewen (Evan) Pu

yewen.pu@autodesk.com [work] // yewenpu1989@gmail.com [personal]

https://evanthebouncy.github.io/

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## Employment

### Autodesk Research
2020 -
Senior Research Scientist
- code generation for computer-aided designs
- industry scale multi-modal data curation for instruction tuning

### Massachusetts Institute of Technology
2019 - 2020
Postdoctoral Researcher
- program synthesis and computational cognitive science

### Massachusetts Institute of Technology
2012 - 2019
Graduate Student Researcher
- program synthesis and active learning

### Learnable.ai
2018 - 2019
Machine Learning Advisor
- ML + building data annotation pipeline for ML

### Microsoft Research
2018 summer
Research Intern

## Education

### Massachusetts Institute of Technology
2019
PhD of Computer Science
Advisors: Armando Solar-Lezama, Leslie Kaelbling

### University of California, Berkeley
2011
B.A. of Computer Science
B.A. of Mathematics (with high honor)

## Selected Publications

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|---|---|
| ECCV 2024 | Sifan Wu, Amir Hosein Khasahmadi, Mor Katz, Pradeep Kumar Jayaraman, Yewen Pu, Karl Willis, Bang Liu |

CadVLM: Bridging Language and Vision in the Generation of Parametric CAD Sketches

**C&C 2024**

William McCarthy, Justin Matejka, Karl Willis, Judith Fan, Yewen Pu

Communicating Design Intent Using Drawing and Text

**ICML 2024**

Yewen Pu, Saujas Vaduguru, Priyan Vaithilingam, Elena Glassman, Daniel Fried

Amortizing Pragmatic Program Synthesis with Rankings

**ICLR 2024**

Ruocheng Wang, Eric Zelikman, Gabriel Poesia, Yewen Pu, Nick Haber, Noah D Goodman

Hypothesis search: Inductive reasoning with language models

**ICLR 2024**

Saujas Vaduguru, Daniel Fried, Yewen Pu

Generating Pragmatic Examples to Train Neural Program Synthesizers

**NeurIPS 2023**

Di Huang, Ziyuan Nan, Xing Hu, Pengwei Jin, Shaohui Peng, Yuanbo Wen, Rui Zhang, Zidong Du, Qi Guo, Yewen Pu, Yunji Chen

ANPL: Towards Natural Programming with Interactive Decomposition

**NeurIPS 2023**

Zhiao Huang, Feng Chen, Yewen Pu, Chunru Lin, Hao Su, Chuang Gan

DiffVL: scaling up soft body manipulation using vision-language driven differentiable physics

**NeurIPS 2022 (Oral)**

Sam Acquaviva*, Yewen Pu*, Marta Kryven, Theodoros Sechopoulos, Catherine Wong, Gabrielle Ecanow, Maxwell Nye, Michael Tessler, Josh Tenenbaum

Communicating natural programs to humans and machines

**SIGGRAPH 2021**

Karl DD Willis, Yewen Pu, Jieliang Luo, Hang Chu, Tao Du, Joseph G Lambourne, Armando Solar-Lezama, Wojciech Matusik

Fusion 360 gallery: A dataset and environment for programmatic cad construction from human design sequences

**CVPR 2021**

Karl DD Willis, Pradeep Kumar Jayaraman, Joseph G Lambourne, Hang Chu, Yewen Pu

Engineering sketch generation for computer-aided design

| NeurIPS 2021 | Yichen Yang, Jeevana Priya Inala, Osbert Bastani, <u>Yewen Pu</u>, Armando Solar-Lezama, Martin Rinard |
| --- | --- |
| | Program synthesis guided reinforcement learning for partially observed environments |

| ICLR 2021 | Maxwell Nye, <u>Yewen Pu</u>, Matthew Bowers, Jacob Andreas, Joshua B Tenenbaum, Armando Solar-Lezama |
| --- | --- |
| | Representing partial programs with blended abstract semantics |

| NeurIPS 2020 | Jeevana Priya Inala, Yichen Yang, James Paulos, <u>Yewen Pu</u>, Osbert Bastani, Vijay Kumar, Martin Rinard, Armando Solar-Lezama |
| --- | --- |
| | Neurosymbolic Transformers for Multi-Agent Communication |

| NeurIPS 2020 | <u>Yewen Pu</u>, Kevin Ellis, Marta Kryven, Josh Tenenbaum, Armando Solar-Lezama |
| --- | --- |
| | Program synthesis with pragmatic communication |

| NeurIPS 2019 | Kevin Ellis*, Maxwell Nye*, <u>Yewen Pu</u>*, Felix Sosa*, Josh Tenenbaum, Armando Solar-Lezama |
| --- | --- |
| | Write, execute, assess: Program synthesis with a repl |

| NeurIPS 2019 | Charith Mendis, Cambridge Yang, <u>Yewen Pu</u>, Dr Saman Amarasinghe, Michael Carbin |
| --- | --- |
| | Compiler auto-vectorization with imitation learning |

| NeurIPS 2018 | Osbert Bastani, <u>Yewen Pu</u>, Armando Solar-Lezama |
| --- | --- |
| | Verifiable reinforcement learning via policy extraction |

| SIGGRAPH Asia 2018 | Tao Du, Jeevana Priya Inala, <u>Yewen Pu</u>, Andrew Spielberg, Adriana Schulz, Daniela Rus, Armando Solar-Lezama, Wojciech Matusik |
| --- | --- |
| | Inversecsg: Automatic conversion of 3d models to csg trees |

| ICML 2018 (Oral) | <u>Yewen Pu</u>, Zachery Miranda, Armando Solar-Lezama, Leslie Kaelbling |
| --- | --- |
| | Selecting representative examples for program synthesis |

| UAI 2017 | <u>Yewen Pu</u>, Leslie P Kaelbling, Armando Solar-Lezama |
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Learning to acquire information

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|---|---|
| OOPSLA 2016 (workshop) | Yewen Pu, Karthik Narasimhan, Armando Solar-Lezama, Regina Barzilay |
| | sk\_p: a neural program corrector for MOOCs |
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| POPL 2013 | Ali Koksal, Yewen Pu, Saurabh Srivastava, Rastislav Bodik, Jasmin Fisher, Nir Piterman |
| | Synthesis of biological models from mutation experiments |
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| OOPSLA 2011 | Yewen Pu, Rastislav Bodik, Saurabh Srivastava |
| | Synthesis of first-order dynamic programming algorithms |

## Preprints

| | |
|---|---|
| arxiv 2024 | Xianghao Xu, Aditya Ganeshan, Karl DD Willis, Yewen Pu, Daniel Ritchie |
| | Creating Language-driven Spatial Variations of Icon Images |
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| arxiv 2023 | Leonardo Hernandez Cano, Yewen Pu, Robert Hawkins, Josh Tenenbaum, Armando Solar-Lezama |
| | Building Community Driven Libraries of Natural Programs |
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| arxiv 2023 | Priyan Vaithilingam, Yewen Pu, Elena L Glassman |
| | The Usability of Pragmatic Communication in Regular Expression Synthesis |

## Invited Talks

| | |
|---|---|
| Curating human-human instruction dataset @ CMU Language Technologies Institute Colloquium | 2024 Nov |
| Code Generation Inspired by Human Communication @ Stanford CogToolsLab | 2024 Aug |
| Pragmatic Program Synthesis @ Boston Computation Club | 2024 July |
| Code Generation Inspired by Human Communication @ Berkeley NLP Lunch | 2024 July |
| Pragmatic Program Synthesis | 2024 May |

@ UCSD Design Lab Research Invited Guest Talk

Pragmatic Program Synthesis                                      2024 May
@ Vienna University of Technology

Pragmatic Program Synthesis                                      2024 May
@ Cocosci Lunch / MIT

Pragmatic Program Synthesis                                      2024 March
@ Neuro-Symbolic Seminar / MIT

Pragmatic Program Synthesis                                      2024 Feb
@ UCSD PL Seminar

Natural Programming in Communicating Designs                    2023 June
@ 2023 Frontiers in Design Representation Summer School

Programming as Collaborative Search                             2023 April
@ Stanford cocolab

Communicating Natural Programs to Humans and Machines           2022 Nov
@ carper.ai

LARC : Language annotated Abstraction and Reasoning Corpus      2021 April
@ MIT cocosci

Program Synthesis with Pragmatic Communication                  2021 Jan
@ MIT Cpl-lab

Program Synthesis with Pragmatic Communication                  2020 Nov
@ Ras Bodik Group @ University of Washington

Program Synthesis with Pragmatic Communication                  2020 Oct
@ PL Seminar @ UCSD

Program Synthesis with Pragmatic Communication                  2020 Aug
@ Stanford cocolab

Program Synthesis with Pragmatic Communication                  2020 June
@ Variation Lab @ Harvard SEAS

Program Synthesis as Communication                              2020 March
@ Autodesk

Program Synthesis as Communication                              2019 Dec
@ Deepmind

Program Synthesis : From Communication to Computation           2019 Nov
@ Machine Programming Group @ Intel Labs

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|---|---|
| Write, Execute, Assess: Program Synthesis with a REPL @ Google Brain | 2019 Oct |
| Write, Execute, Assess: Program Synthesis with a REPL @ Facebook | 2019 Oct |

## Advising

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|---|---|
| (CMU) Saujas Vaduguru, with Daniel Fried | 2021 - |
| (MIT) Leonardo Hernández Cano, with Armando Solar-Lezama | 2020 - |
| (CAS) Di Huang | 2022 - |
| (Berkeley) Rodolfo (Rudy) Corona, with Dan Klein | 2024 - |
| (Cornell) WenDing Li, with Kevin Ellis | 2024 - |
| (Cornell) Keya Hu, with Kevin Ellis | 2024 - |
| (Stanford) Rio Aguina-kang, with Judith Fan | 2024 - |
| (Brown) Xianghao Xu, with Daniel Ritche | 2023 - |
| (UCSD) William McCarthy, with Judith Fan | 2023 - 2024 |
| (MIT) Sam Acquaviva, with Josh Tenenbaum | 2020 - 2024 |
| (Stanford) Ruocheng Wang, with Noah Goodman | 2023 - 2023 |
| (UCSD) Zhiao Huang, with Chuang Gan | 2023 - 2023 |
| (Harvard) Priyan Vaithilingam, with Elena Glassman | 2022 - 2023 |

## Services

### Thesis Committee

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|---|---|
| Samuel Acquaviva, 2024 (Master) | Massachusetts Institute of Technology |
| Fernando Abigail Galicia Mendoza, 2023 (PhD) | Universidad Nacional Autónoma de México |

## Reviewer

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|---|---|
| NeurIPS | 2018 - |
| ICML | 2018 - |
| ICLR | 2020 - |
| CogSci | 2022 - |
| AAAI | 2023 - |
| UIST | 2023 - |
| ACL / EMNLP | 2023 - |
| UAI | 2018 |