

# Panupong (Ice) Pasupat

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<https://ppasupat.github.io>

## EDUCATION

### Stanford University

Pursuing Doctor of Philosophy in Computer Science

Stanford, CA

2013-present

### Massachusetts Institute of Technology

Bachelor of Science in Electrical Engineering and Computer Science (GPA 5.0/5.0)

Cambridge, MA

2009-2013

## EXPERIENCE

### Facebook Conversational AI, Facebook

Research Intern

Menlo Park, CA

2018

- Improved a neural shift-reduce model for parsing sentences into hierarchical intent-slot semantic representation.
- Analyzed common errors, and designed new top-down and bottom-up parsing algorithms to address the errors.

### Google Research, Google

Software Engineering Intern

Mountain View, CA

2015

- Developed deep learning models in TensorFlow for paraphrase detection.
- Proposed negative sampling methods using linguistic resources to better distinguish closely related words.
- Demonstrated how appropriate combinations of model choices and negative samplers improve the accuracy.

### Speech and Dialog Research Group, Microsoft Research

Research Intern

Mountain View, CA

2014

- Bootstrapped classifiers for detecting knowledge base relations in spoken queries in an unsupervised fashion.
- Mined queries from search engine query click logs and automatically labeled relations using distant supervision from knowledge graphs.

### Natural Language Processing Laboratory, Tokyo Institute of Technology

Exchange Student

Yokohama, Japan

2013

- Experimented on Tweet sentiment analysis using different classifiers and features.
- Applied structural correspondent learning to incorporate unlabeled data to the classifier.

### Spoken Language Systems Group, MIT Computer Science & Artificial Intelligence Lab

Researcher, Intern

Cambridge, MA

2012

- Designed web interfaces on Amazon Mechanical Turk to collect spoken sentences and their semantic labeling.
- Trained sequence tagging models by implementing features for conditional random fields, resulting in English and Chinese models for categorizing words in speech queries.
- Deployed the models in speech-enabled mobile applications for movie, flight, and restaurant recommendation.

## SELECTED PUBLICATIONS

### Reinforcement Learning on Web Interfaces using Workflow-Guided Exploration

E. Liu\*, K. Guu\*, P. Pasupat\*, T. Shi, P. Liang (\*equal contribution)

ICLR

2018

- Designed and implemented a novel exploration algorithm for reinforcement learning agents, which reduces the amount of expert demonstrations needed by 100x.
- Improved and open-sourced the MiniWoB++ Web interface interaction benchmark for reinforcement learning.

### Compositional Semantic Parsing on Semi-Structured Tables

P. Pasupat, P. Liang

ACL

2015

### Inferring Logical Forms From Denotations

P. Pasupat, P. Liang

ACL

2016

### Macro Grammars and Holistic Triggering for Efficient Semantic Parsing

Y. Zhang, P. Pasupat, P. Liang

EMNLP

2017

- The three publications above propose machine learning models for answering complex natural language questions based on the information in a given Web table.
- Proposed novel algorithms to flexibly handle lexical and syntactic mismatches, filter misleading solutions that sometimes give correct answers, and reuse parts of good solutions to speed up the model.

Complete list of publications: <https://ppasupat.github.io/research.html>

## SKILLS

- Computer Languages:** Python (TensorFlow, PyTorch), Java, JavaScript
- Languages:** Thai (native speaker), English (fluent), Japanese (intermediate), Chinese (beginner)