

# Mycal Tucker

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## EDUCATION

### Mass. Institute of Technology

MEng. Sep 2016  
CS in AI  
Cum. GPA: 5.0/5.0

### Mass. Institute of Technology

BS June 2015  
Double Major:  
Computer Science  
Aeronautical and Astronautical Eng.  
Cum. GPA: 4.9/5.0

## SKILLS

### Languages:

Java, Scala, Python

### Tools:

Git, Vim

### Independently Learned:

C++, R, Matlab/Simulink

## COURSEWORK

Design and Analysis of Algorithms  
Underactuated Robotics  
Inference and Information  
Algorithms for Inference

## AWARDS

Winner of Morsa prize for best  
application of comp. sci. to  
aero/astro engineering  
Member of Tau Beta Pi  
Member of Eta Kappa Nu

## LEADERSHIP ROLES

Captain of MIT Crew Team  
Coach of MIT Crew novices  
Team lead in satellite mission  
course

## WORK AND RESEARCH EXPERIENCE

### Amazon Robotics – Software Developer

Aug 2016 – Present

Software Developer on Advanced Robotics team North Reading, MA

- Designed and implemented order allocation algorithms for new Fulfillment Center designs
- Integrated new automation paths with robotic vendors

### Massachusetts Institute of Technology

Aug 2015 – Aug 2016

Grad. Student Researcher in Robust Robotics Group Cambridge, MA

- Extended natural-language grounding model to autonomously learn new phrases and objects
- Evaluated end-to-end framework and demonstrated statistically significant improvements

### Massachusetts Institute of Technology

Aug 2015 – Dec 2015

Teaching Assistant for Intro. to AI Cambridge, MA

- Conducted weekly recitations and office hours for 40 students; wrote and graded midterms and final.
- Ended semester as the highest-rated teaching assistant in CS department with > 10 reviews.

## PUBLICATIONS

- M. Tucker, A. Derya, R. Paul, G. Stein, and N. Roy. Learning Unknown Groundings for Natural Language Interaction with Mobile Robots. In International Symposium on Robotics Research, Chile, 2017.
- M. Tucker (2016). DCG-UPUP-Away: Automatic Symbol Learning through Grounding to Unknowns. (Master's Thesis), MIT, Cambridge, Massachusetts.

## INDEPENDENT PROJECTS

### EdX Courses Individually took online courses after work

- Intro. to R – basics of statistics scripting language
- Intro. to C++ – formal introduction to C++ fundamentals

### Secret Santa Permutation Analysis

Statistically modeled and analytically proved expected number of loops within a permutation of  $n$  players.

### Learning Error-Correction Bit Importance (ongoing)

Designed and implemented genetic algorithm to learn optimal distribution of error-correction bits; later verified analytically.