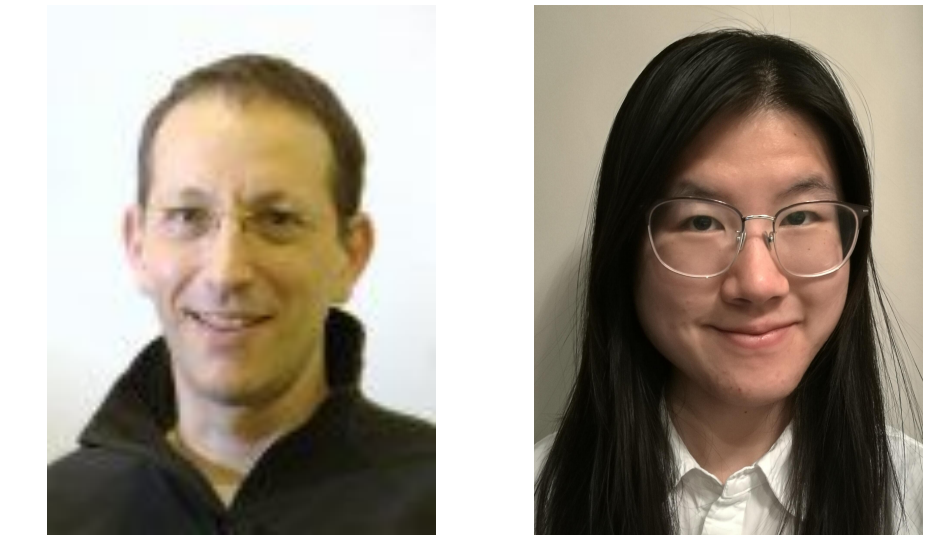


Giving Access to Previous Projects Enriches Student Experience

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Link to HRB course wiki:
<https://wiki2.eecs.umich.edu/hrb/>



Introduction

In EECS/ROB 464 “Hands-On Robotics” (HRB), students model, design and build robots to compete at 3 predefined tasks. Designs are very open ended and each project starts with a design brainstorming presentation.

Unlike most other project-based classes, we encourage students to use and build on projects from previous years. We discuss methods and consequences of this choice.

Background

HRB students have access to an archive of previous reports which includes videos, design documents, and construction tutorials. They are encouraged to review what other students have done in previous years, draw inspiration, and improve on previous solutions.

We examined how often students referenced previous years’ designs as a metric for the importance and influence of this sort of resource, compared with other, more traditional, resource types.

Result

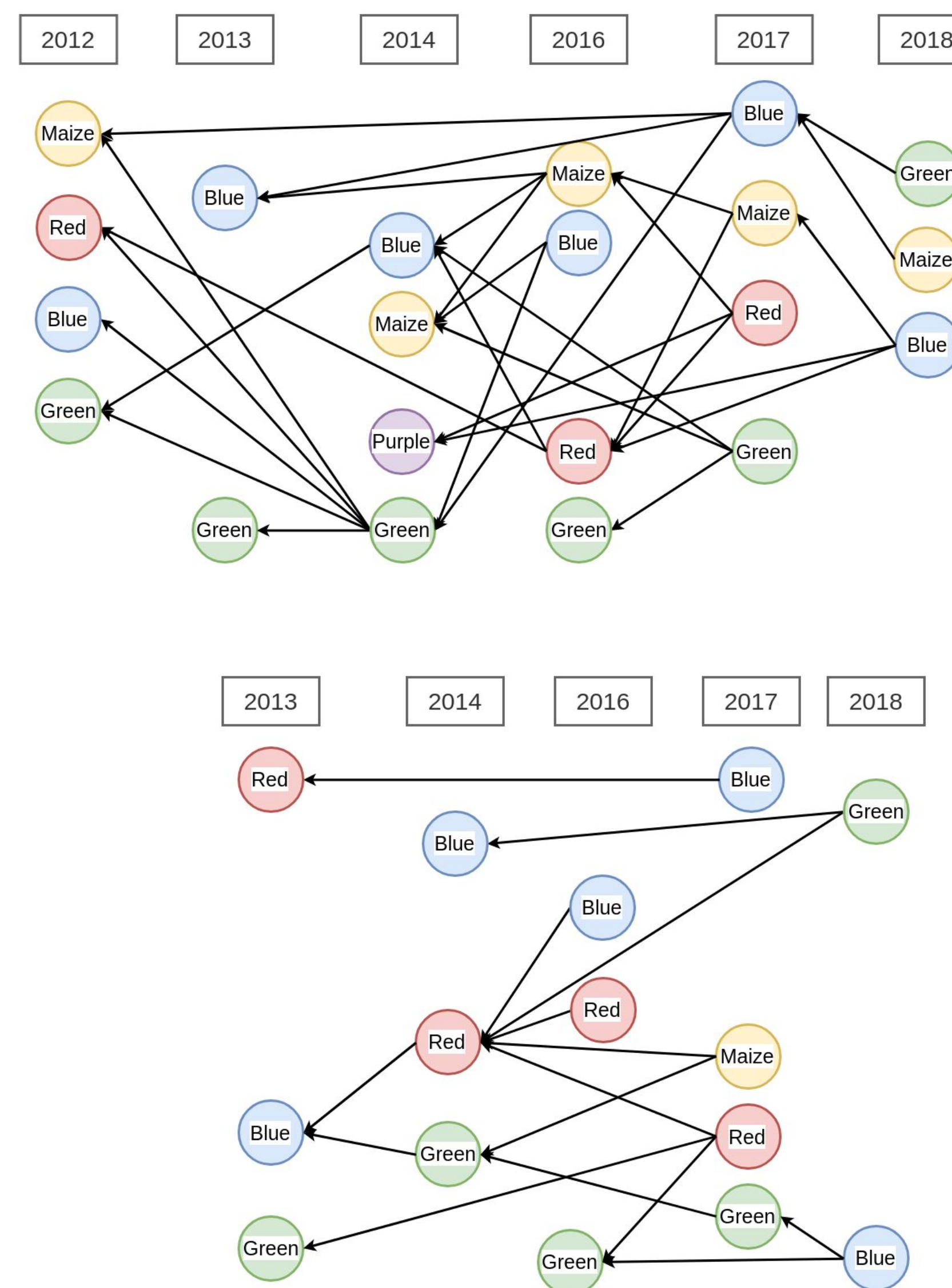


Figure 1: References to previous projects on brainstorming for project 1 (upper) and project 2 (lower).

Results

From 2013 to 2018 with total 20 teams and 2 projects done by each team, projects reference 1(2) (median; IQR) previous projects, 0(2) academic publications, 4(3) other types of resources as inspiration. Projects are referenced 1(2) times.

Discussion

Students seem to prefer using previous years’ reports as a resource to using conventional academic publications. Additional benefits to student include:

- Making better and better robots over time.
- Directly experiencing the value of having a professional literature.
- Providing a platform for teaching technical communication skills: demonstrating the value of clear writing, reproducibility, and careful quantitative reasoning.

Acknowledgement

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