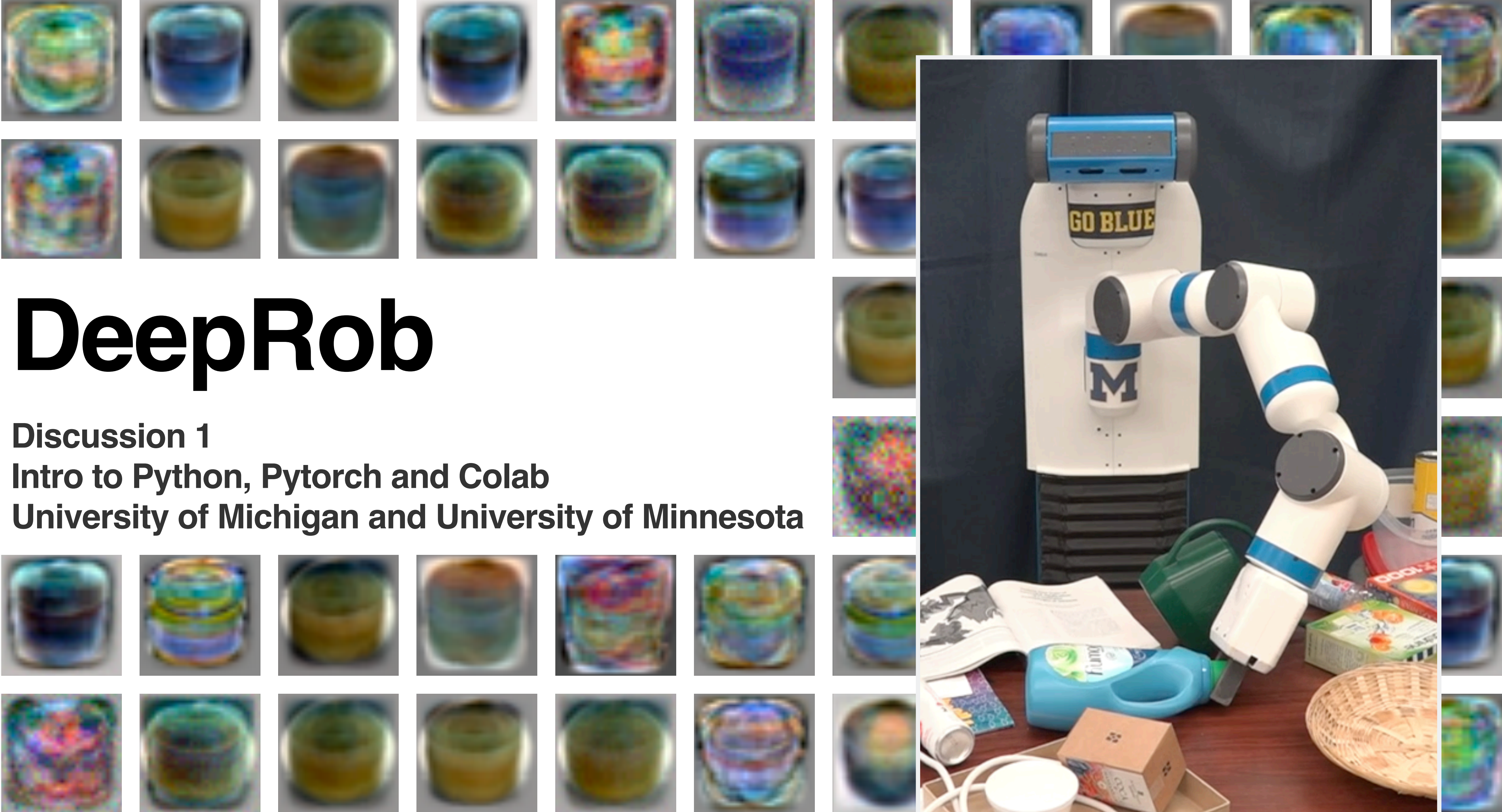


DR



# DeepRob

Discussion 1  
Intro to Python, Pytorch and Colab  
University of Michigan and University of Minnesota





# Today's Agenda

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- Administrative Announcements
- Introduction to Project 0
- Project 0 development demo
- Troubleshooting

# Enrollment

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- Additional class permissions being issued
- Both sections (498 & 599)
- If you don't receive a class permission by next Tuesday's lecture, contact Anthony and Prof. Jenkins

# Discussion Forum

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- [Ed Stem](#) available for course discussion and questions
- Forum is shared across UMich and UMinn students
- Participation and use is not required
- Opt-in using [this Google form](#)
- **Discussion of quizzes and verbatim code must be private**

# Today's Agenda

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- Course Announcements
- Introduction to Project 0
- Project 0 development demo
- Troubleshooting



# Project 0—Introduction

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- Objective
  - Gain experience working with Python, PyTorch and Google Colab
- You will implement a collection of functions using PyTorch Tensor objects



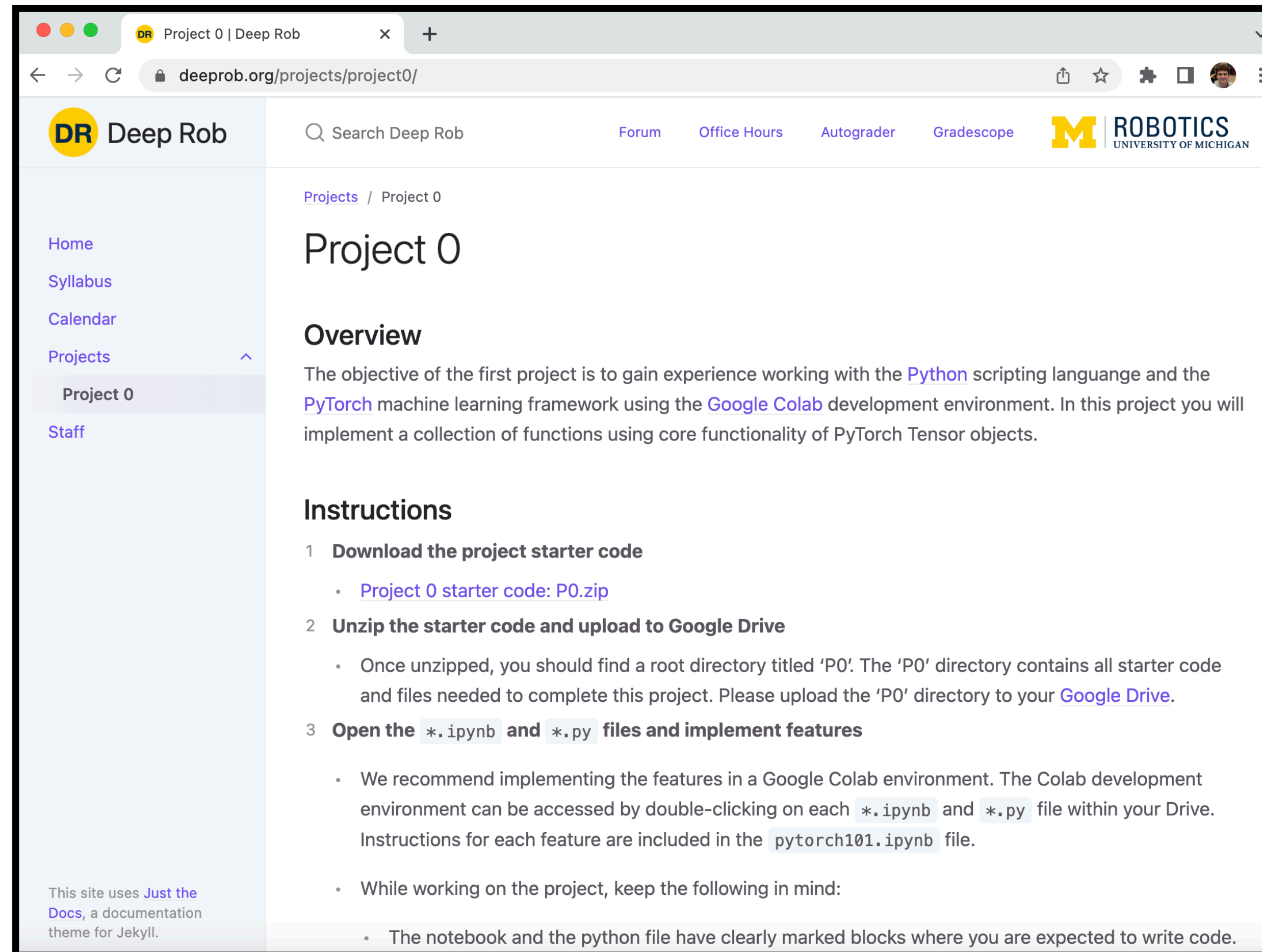
# Project 0—Logistics

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- Instructions and code available on the website
- Here: [deeprob.org/projects/project0/](https://deeprob.org/projects/project0/)
- Uses Python, PyTorch and Google Colab
- Introduction to PyTorch Tensors
- **Due next Thursday, January 12th 11:59 PM EST**



# Project 0—Instructions



The screenshot shows a web browser window with the URL `deeprob.org/projects/project0/`. The page features a navigation sidebar on the left with links for Home, Syllabus, Calendar, Projects (expanded), Project 0 (selected), and Staff. The main content area is titled "Project 0" and includes an "Overview" section and an "Instructions" section. The "Overview" section states the project's objective: to gain experience with Python, PyTorch, and Google Colab. The "Instructions" section is a numbered list of three steps: 1. Download the project starter code (with a link to `P0.zip`), 2. Unzip the starter code and upload to Google Drive (with instructions on where to upload), and 3. Open the `*.ipynb` and `*.py` files and implement features (with details on using Google Colab and a note about code blocks). A footer note at the bottom left of the page states: "This site uses [Just the Docs](#), a documentation theme for Jekyll."

DR Deep Rob

Search Deep Rob

Forum Office Hours Autograder Gradescope

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Projects / Project 0

## Project 0

### Overview

The objective of the first project is to gain experience working with the [Python](#) scripting language and the [PyTorch](#) machine learning framework using the [Google Colab](#) development environment. In this project you will implement a collection of functions using core functionality of PyTorch Tensor objects.

### Instructions

- Download the project starter code**
  - [Project 0 starter code: P0.zip](#)
- Unzip the starter code and upload to Google Drive**
  - Once unzipped, you should find a root directory titled 'P0'. The 'P0' directory contains all starter code and files needed to complete this project. Please upload the 'P0' directory to your [Google Drive](#).
- Open the `*.ipynb` and `*.py` files and implement features**
  - We recommend implementing the features in a Google Colab environment. The Colab development environment can be accessed by double-clicking on each `*.ipynb` and `*.py` file within your Drive. Instructions for each feature are included in the `pytorch101.ipynb` file.
  - While working on the project, keep the following in mind:
    - The notebook and the python file have clearly marked blocks where you are expected to write code.

This site uses [Just the Docs](#), a documentation theme for Jekyll.



# Project 0—Instructions

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1. Download the project starter code
2. Unzip the starter code and upload to Google Drive
3. Open the \*.ipynb and \*.py files and implement features
4. Submit your implementation for Autograder feedback
5. Download final implementation
6. Submit your python and notebook files for grading



# Project 0—Development Env.

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- Course projects will be implemented on Google Colab
  - A cloud computing service
  - Requires minimal setup
  - Access to GPU resources





# Project 0—Development Demo

The screenshot shows a Google Colab notebook titled "pytorch101.ipynb". The browser address bar shows the URL "colab.research.google.com/drive/1n1Zd1-QeG08A0pzifIFMF3isbF24YCET". The notebook interface includes a "Table of contents" sidebar on the left, a main content area, and a top navigation bar with options like "File", "Edit", "View", "Insert", "Runtime", "Tools", and "Help".

The "Table of contents" sidebar lists the following sections:

- ROB 498-002/599-009 Project 0-1: PyTorch 101
  - Setup Code
    - Google Colab Setup
  - Introduction
  - Python 3
    - Print is a function
    - Floating point division by default
    - No xrange
  - PyTorch
    - Tensor Basics
      - Creating and Accessing tensors
      - Tensor constructors
      - Datatypes
    - Tensor indexing
      - Slice indexing
      - Integer tensor indexing
      - Boolean tensor indexing
    - Reshaping operations
    - View

The main content area shows the following text:

ROB 498-002/599-009 Project 0-1: PyTorch 101

Before we start, please put your name and UMID in following format  
: Firstname LASTNAME, #00000000 // e.g.) Anthony OPIPARI, #12345678

**Your Answer:**  
Your NAME, #XXXXXXXX

Setup Code

Before getting started we need to run some boilerplate code to set up our environment. You'll need to rerun this setup code each time you start the notebook.

First, run this cell load the [autoreload](#) extension. This allows us to edit `.py` source files, and re-import them into the notebook for a seamless editing and debugging experience.

```
[ ] %load_ext autoreload
    %autoreload 2
```

The autoreload extension is already loaded. To reload it, use:  
%reload\_ext autoreload





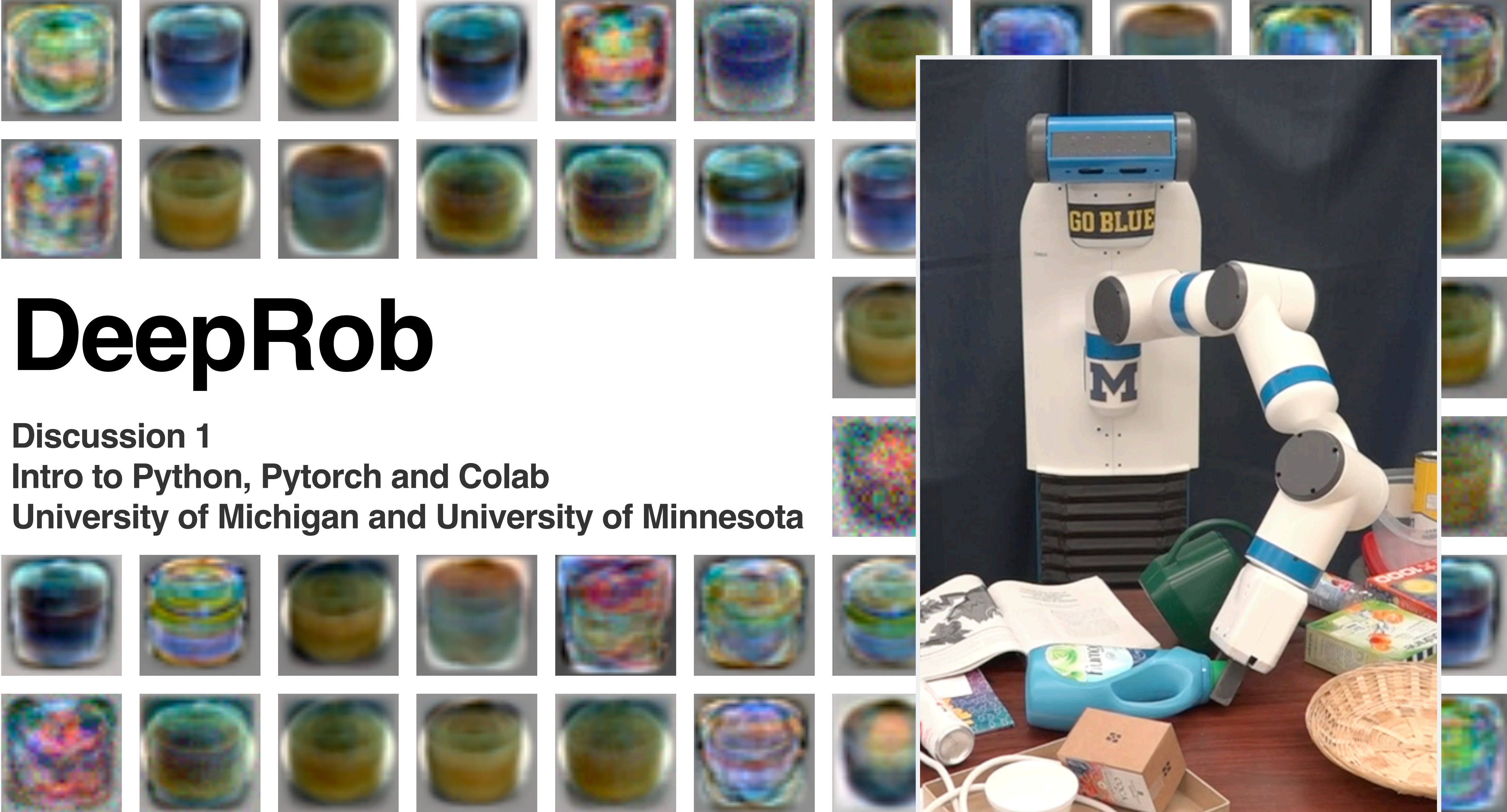


# Autograder

The screenshot shows a web browser window with the URL `autograder.io/web/project/1882`. The page title is "Autograder - ROB 599 Winter 2023 - Project 0". Navigation tabs include "Submit", "My Submissions", and "Student Lookup". The submission is due on **January 12, 2023, 11:59 PM EST (6 days 8 hours)**. The student's email is `topipari@umich.edu`. Submission statistics show **0/2** submissions used today and **2** late day tokens remaining. A link asks "What files should I submit?". A large blue-bordered box contains the text "Drop files here - or -" and a button labeled "Choose files to upload".







# DeepRob

## Discussion 1

Intro to Python, Pytorch and Colab

University of Michigan and University of Minnesota

