Students Building Shiny Apps: an Update on the BOAST Project

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About BOAST

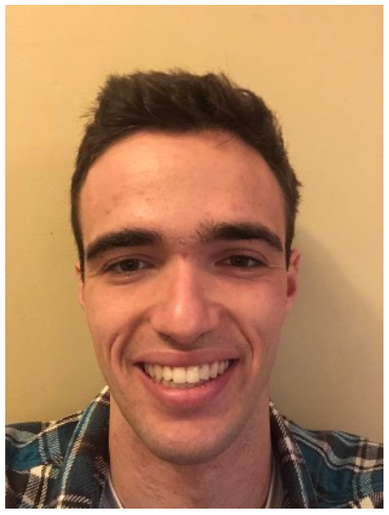
The Book of Apps for Statistics Teaching (BOAST) is a collection of student designed and coded Shiny apps meant to support other students in building productive meanings for various statistical concepts at both introductory and upper division levels.

Each summer and fall, a group of undergraduates participate by spending time discussing, building, and updating apps for BOAST.

What makes BOAST different?

- Students building apps for students
- Focus on ensuring apps are as accessible as possible
- Adoption of a Style Guide
- Working to make apps mobile friendly
- Connected to research

2020 Students

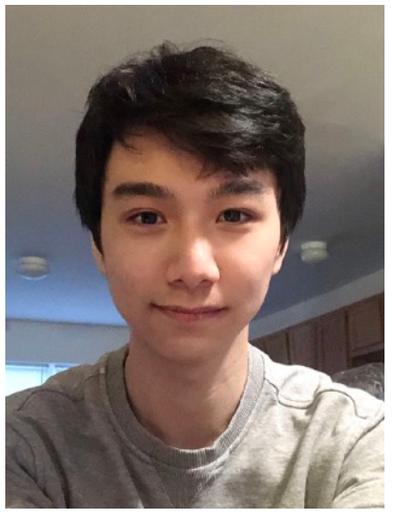


Ethan

Gonghao

Leah

Xigang



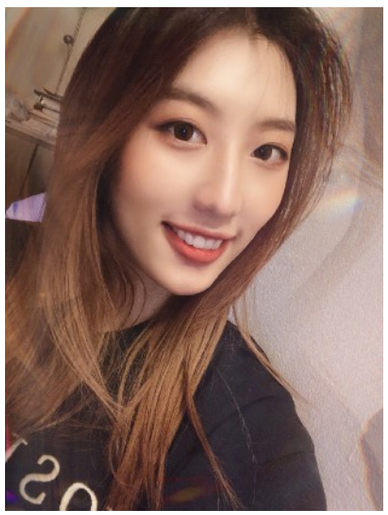
Zeyuan (Primo)

Chenese

Dae Hoon

Jiawei

Xuefei



Zhoulin

BOAST Participant Outcomes and Requirements

Outcomes

- Enhance their coding skills (esp. in R)
- Learn to use Shiny as a way to demonstrate concepts
- Experience with version control (GitHub)
- Enhance their own statistical understandings
- Provide an opportunity to engage in research
- Experience working with and adhering to a Style Guide

Requirements

- Stat majors with 3.0+ GPA and some familiarity with R (at least complete a DataCamp intro course on Shiny)
- Full time job from mid-May to the end of July
  - Full group meetings five days a week in the summer
  - Each student builds at least one new app and/or revise/update/overhaul an existing app(s).
- Fall semester course (one meeting a week)
  - Continue working on apps
  - Participate in presentations
  - Put together a research project

New BOAST Aspects

Summer 2020

- boastUtils **package**
  - https://github.com/EducationShinyAppTeam/boastUtils
- boastApp **call vs.** shinyApp **call**
- **the BOAST Style Guide (v 1.0)**
  - https://github.com/EducationShinyAppTeam/Style_Guide
  - **An official BOAST CSS file**

Fall 2020 and beyond

- **User feedback buttons**
- **New app template**
  - **Including customized** DESCRIPTION **and** README.md
- **A revised set of sample apps**
  - **The Data Tables Example (https://neilhatfield.shinyapps.io/dataTableExample/)**
- **Building Shiny Apps the BOAST Way (v 2.0 of the Style Guide)**
- boastWidgets **package**
- **Instructor's App**

BOAST

BOAST Website: https://sites.psu.edu/shinyapps/

Project GitHub: https://github.com/EducationShinyAppTeam

Types of Apps

- **Concept Explorations**
- **Concept Challenges**
- **Games**
  - **Matching**
  - **Tic-Tac-Toe**
  - **Tree Fall (Hangman Style)**
  - **Escape Room**
- **We use both simulation and real data**

App Demos

We will demonstrate some of the new apps that students developed.

1. Leah Hunt—Tree Diagrams
   App: https://psu-eberly.shinyapps.io/Tree_Diagrams/
   Repo: https://github.com/EducationShinyAppTeam/Tree_Diagrams

2. Xigang Zhang—Collinearity and the Variance Inflation Factor
   App: https://psu-eberly.shinyapps.io/Variance_Inflation_Factor/
   Repo: https://github.com/EducationShinyAppTeam/Variance_Inflation_Factor

3. Gonghao Liu—Assumptions of ANOVA
   App: https://psu-eberly.shinyapps.io/Assumptions_of_ANOVA/
   Repo: https://github.com/EducationShinyAppTeam/Assumptions_of_ANOVA

4. Ethan Wright—Training vs. Testing Dataset Proportions
   App: https://psu-eberly.shinyapps.io/Training_vs_Testing_Dataset_Proportions/
   Repo: https://github.com/EducationShinyAppTeam/Training_vs._Testing_Dataset_Proportions

5. Zeyuan (Primo) Wang—Escape Room-Stochastic Processes
   App: [Not in the book yet]
   Repo: https://github.com/EducationShinyAppTeam/Escape_Room_Stochastic_Processes

Thanks!

Thank you for attending our webinar.

We'll now take questions from the audience.

If you have additional questions, discover any bugs, suggestions for app topics/improvements, or other comments, please send them our way via an email to boast-project@psu.edu.

Shout Out!

Maria Tackett is leading Duke University's first iteration of their own BOAST-like program. Be on the lookout for an upcoming presentation from them.

PennState