Project 2: Does our skill at citizen science change with time?
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Citizen science is an incredibly powerful scientific tool. By combining the classifications of a large number of citizen scientists, we can get statistical classifications for a huge volume of objects, and find new exciting anomalies that are hard for machines to find.

But how does the skill of individual citizen scientists change with time? In this project, you'll step 'behind the curtain' and take a look at the classification data from the Planet Hunters TESS mission (see: https://arxiv.org/pdf/2011.13944.pdf).

We'll examine the classification performance of users with time to look for any changes with their classifications. Are they better in the day or at night? Are new classifiers just as useful as those with more experience? This project will teach you some statistics and analysis skills, and you'll learn about classification of astronomical data sets. We can potentially use insights from this project to help improve our search for planets.

Project Learning Objectives
The project learning goals very slightly by project, but generally they include:

1. Participants will learn about citizen science projects in astronomy, most notably the Planet Hunters Tess project
2. Participants will learn some coding (Python), which will be used to read in and process the participant data from a citizen science project
3. Participants will identify potential patterns in the classification data and skill level with time and link them to the type of tasks being undertaken
4. Participants will formulate scientific questions and strategies for answering them.
5. Participants will express the results of their research clearly in terms accessible to their peers.
6. Participants will get first-hand experience of what astronomical research is like and have the opportunity to ask questions about careers in physics and astronomy.
7. Participants will work with Visions of Science Communications team to develop science communication content to share their work through video presentations

Date	Overview	Location
Thursday, July 15, 2021 5:00PM - 6:00PM	Getting Started -- An Introduction to Astronomy Citizen Science - Icebreaker discussion - Introduction to astronomy and classification and the science behind Planet Hunters Tess - BREAK	UofT Dunlap Institute Facilitators: Renée, Sina, Margaret

	- Introduction to the Zooniverse portal using [SuperWASP variable stars project](#) - Homework: Run some classifications of SuperWASP and save your most interesting classifications. Come to the next meeting with some images to discuss - Get set up on Slack/email	
Friday, July 23, 2021 3:00 pm - 5:00 pm	Introduction to coding - Learning Python - Plotting simple data structures, drawing lines, simple statistics - Introduction to data frames and tables - Reading, opening, saving data frames - Indexing and slicing lists - Homework: run classifications in two different scenarios, once when you are awake and once when you are tired. How fresh are you? Do you find it easy to classify objects? Take notes and bring these into our meeting next week	Facilitators: Renée, Sina, Margaret
Friday July 30, 2021 3:00 pm-5:00 pm	Project Work - For a given participant, track progress over time - Draw out the information on the tasks performed by participant - Compare task performance across participant - Make plots to discuss next week	Facilitators: Renée, Sina, Margaret
Friday August 5, 2021 3:00 pm - 5:00 pm (tbc)	Project Work - Continue with the analysis from the previous week - What plots are telling us the clearest story about the participants? - What variables should we show/consider?	Facilitators: Sina, Margaret
Friday August 13, 2021 3:00 pm - 5:00 pm	Project Work - Work on compiling results into a presentable format, both as a report and for the VOSNL showcase - Discuss scientific literature and what constitutes a publishable result - Explore the idea of publishing some of the data	Facilitators: Renée, Sina, Margaret
August (Check Ins Scheduled As Needed)	Finalize Project Video Presentation - Work with Communications Team to consult on project content plan for showcase - Film Project - Research Summary	Visions of Science