Abstract

The artifact in this repository contains code and data related to the paper "Avgust: Automating Usage-Based Test Generation from Videos of App Executions," accepted in the ESEC/FSE 2022 research track.

Avgust is a human-in-the-loop technique that assists developers in generating usage-based tests for mobile apps by learning from videos of app usage. It uses novel vision-based classification techniques that translate app videos into intermediate app-independent models for different app use cases. These models are used to assist developers in generating usage-based test cases for new and unseen apps.

The artifacts in this repository are made public to foster future research in automated testing of mobile applications and app comprehension in general.

This repository contains the main source code of Avgust which contains 4 main steps:

1. Step_extraction: Processing the app videos to detect app-specific UI events.
2. Ir_classification: Classifying app screen and widgets into app-independent internal representation for widgets and screens such as shopping cart button or login screen.
3. Model_generation: Translating the processed app video using the classified widgets and screens into an app-independent model representing a usage such as bookmarking an item.
4. Dynamic_generation: Using the generated app-independent models to generate tests for new unseen apps while dynamically classifying its widgets and screens.

This repository also includes the processed video frames, screenshots, cropped widgets, and all the intermediate results such as IR models and generated tests.