

AI in Testing



About Chris

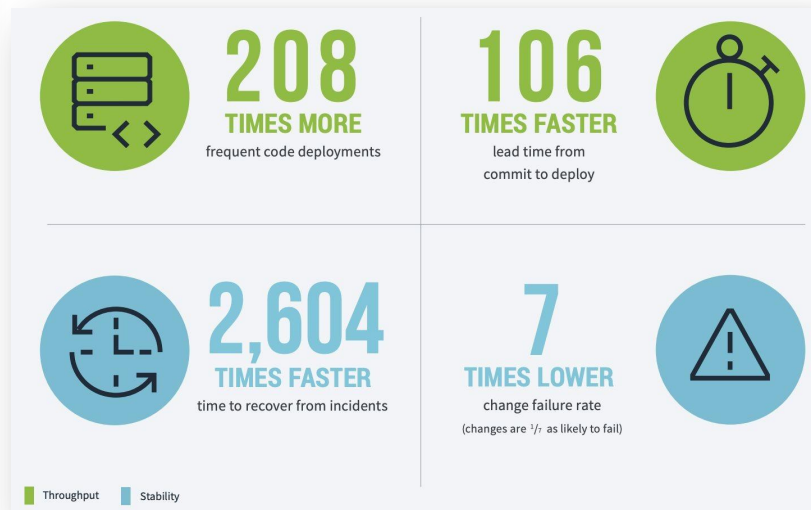


Chris Navrides (CEO)

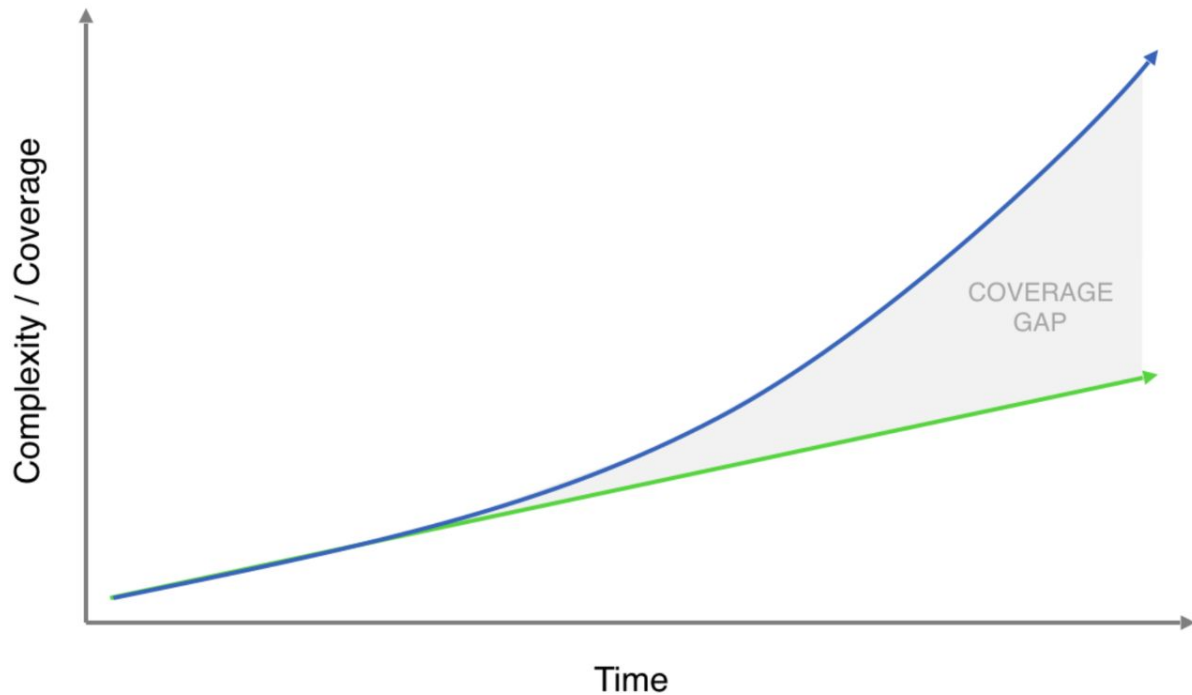
10+ yrs xp w/ Selenium & automation
3 Patents in AI testing space



Thanks Dev Ops...



Increasing Coverage Gap



Features

Complexity increases exponentially as new features and states interact with existing features

Tests

Test coverage grows linearly because they can only be added one at a time

Increase Coverage is Expensive

Google Testing Blog

Test Flakiness - One of the main challenges of automated testing (Part II)

Wednesday, March 24, 2021

Cost to Fix a Bug

Time since bug introduced

15 min

1 day

1 week

1 Month+

Time to fix the bug

2 min

30 min

60 min

3 hours

Cost to fix the bug

\$

\$

\$\$\$\$

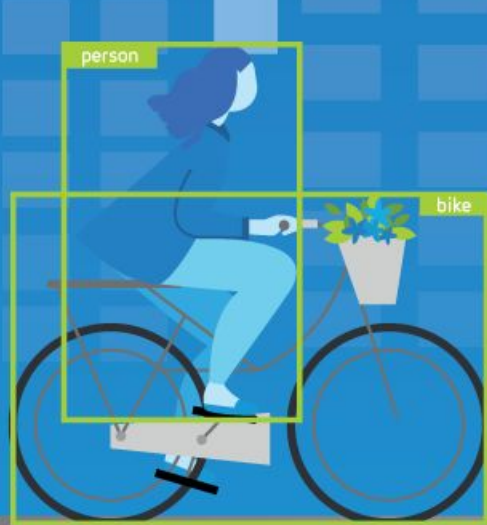
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Definition of ARTIFICIAL INTELLIGENCE

- 1 : a branch of computer science dealing with the simulation of intelligent behavior in computers
 - 2 : the capability of a machine to imitate intelligent human behavior
-

Predictive ML

- Using models to predict what a given output should be
- Ex:
 - OCR
 - Classification (dog, cat, horse)
 - Object detection



Generative ML

- Generates new output based upon input
- Ex
 - Images
 - Fuzzers
 - Test case creation

PNSQC in the Eyes of A.I.

Output from Midjourney Bot from the inputs like “Pacific Norhtwest Quality Conference”



Output from Midjourney Bot from the inputs like
“testing robot”



Reinforcement Learning

- Reward for achieving a goal
- Ex:
 - Playing video games
 - Self Driving car

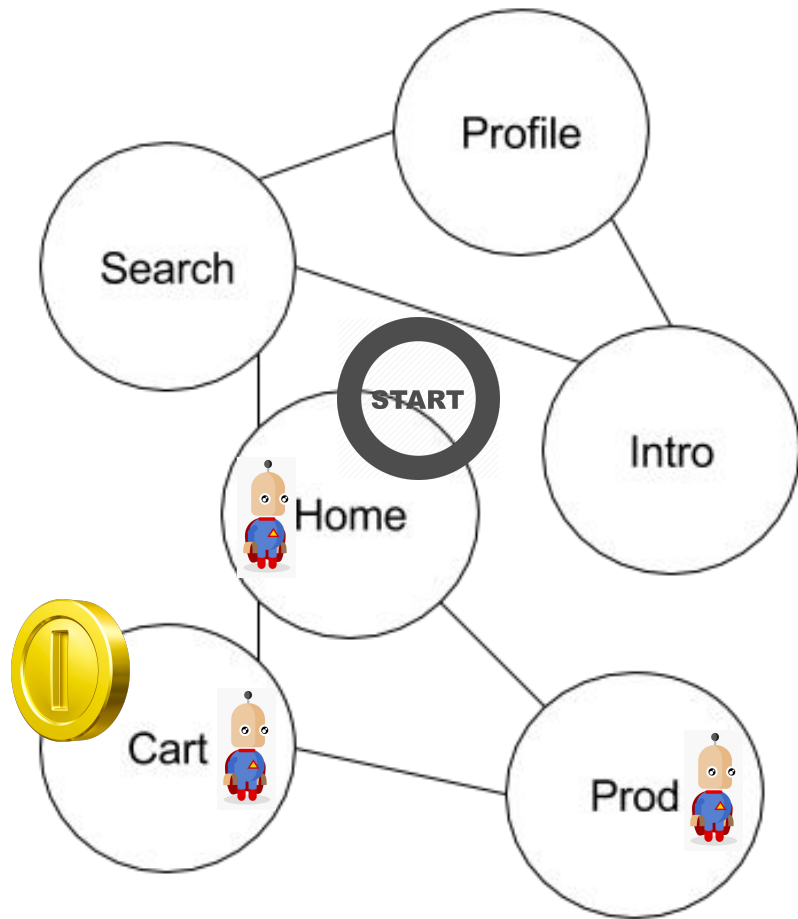
QLearning: AppGraph

0100

(+100)

Found better
path

Hit the goal!



Applications within Testing

Element Selection

Putin Says ‘Mass Strike’ on Ukraine Is Revenge for Bridge Attack

LIVE13m ago

Russia’s Biggest Missile Assault in Months Targets Multiple Cities

President Vladimir Putin ordered strikes that hit at least 10 cities, including Kyiv, in a broad assault against civilian areas and energy infrastructure.

The attacks killed at least 11 people, Ukraine said. President Volodymyr Zelensky called Russia “a terrorist state that is killing our people.”

See more updates



Megan Specia
Residents of Kyiv were again heading into basements and metro stations as air raid sirens sounded. For less than three hours, many had been on the streets surveying the damage and sweeping up broken glass. 2h ago



Russian hawks cheered the attacks, saying they were a sign of escalation.

3 MIN READ

In Kyiv, the strikes shattered what had become a relative sense of calm.

3 MIN READ

The strikes come two days after an explosion damaged a bridge linking Russia to Crimea.

1 MIN READ

Before today’s attacks, Ukraine troops in the south were finding signs of low morale among retreating Russians.

6 MIN READ

1700+ → 91

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Monday, October 10, 2022
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[Russia-Ukraine War 13m ago](#)
[Nobel Economics Prize 20m ago](#)

Putin Says ‘Mass Strike’ on Ukraine Is Revenge for Bridge Attack

LIVE 13m ago

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[See more updates](#)

REUTERS

Megan Specia
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• • • • •

[Russian hawks cheered the attacks, saying they were a sign of escalation.](#)
[3 MIN READ](#)

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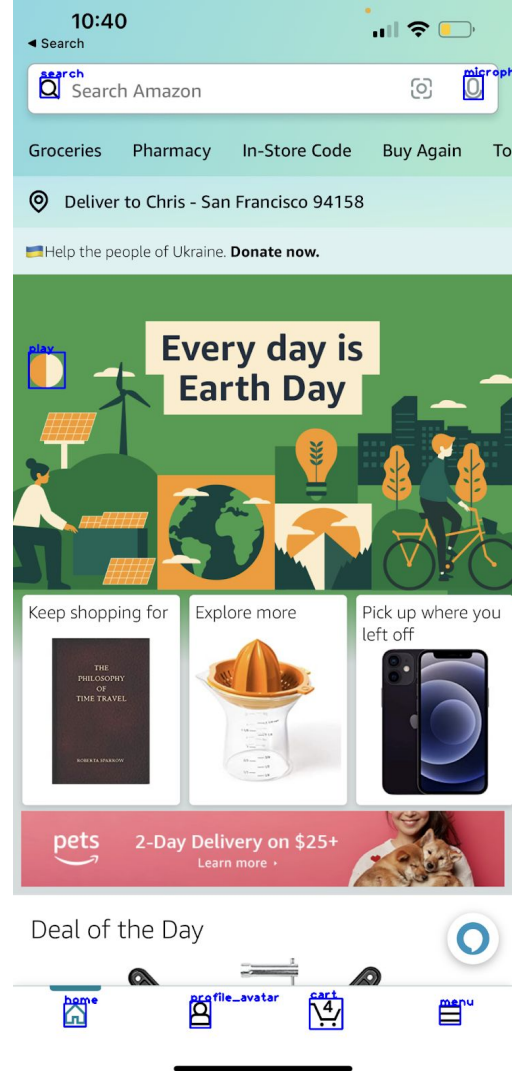
[The strikes come two days after an explosion damaged a bridge linking Russia to Crimea.](#)
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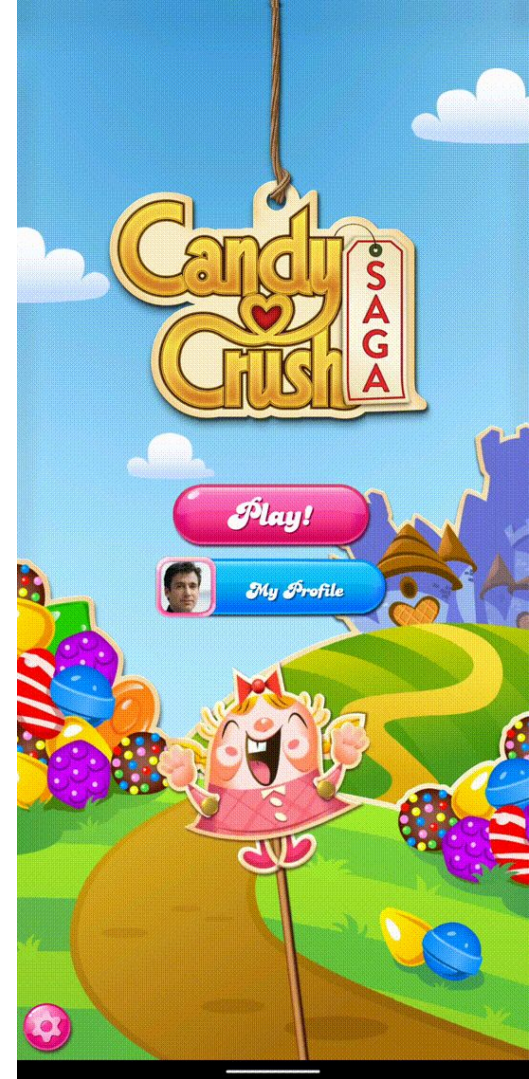
Element Classification



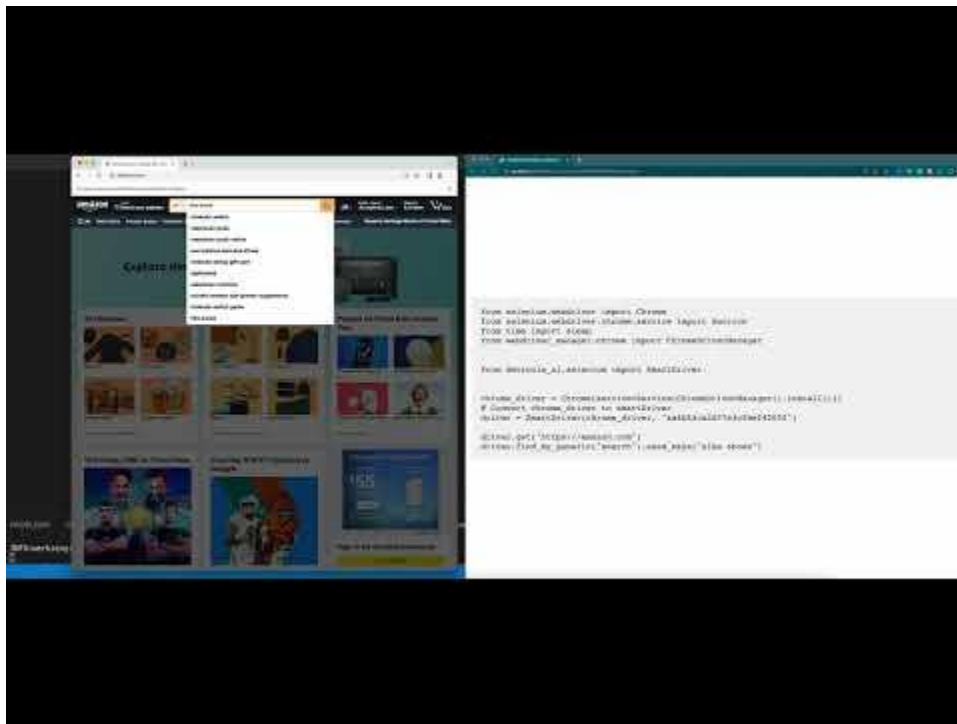
Navigation



Advanced Reward Functions



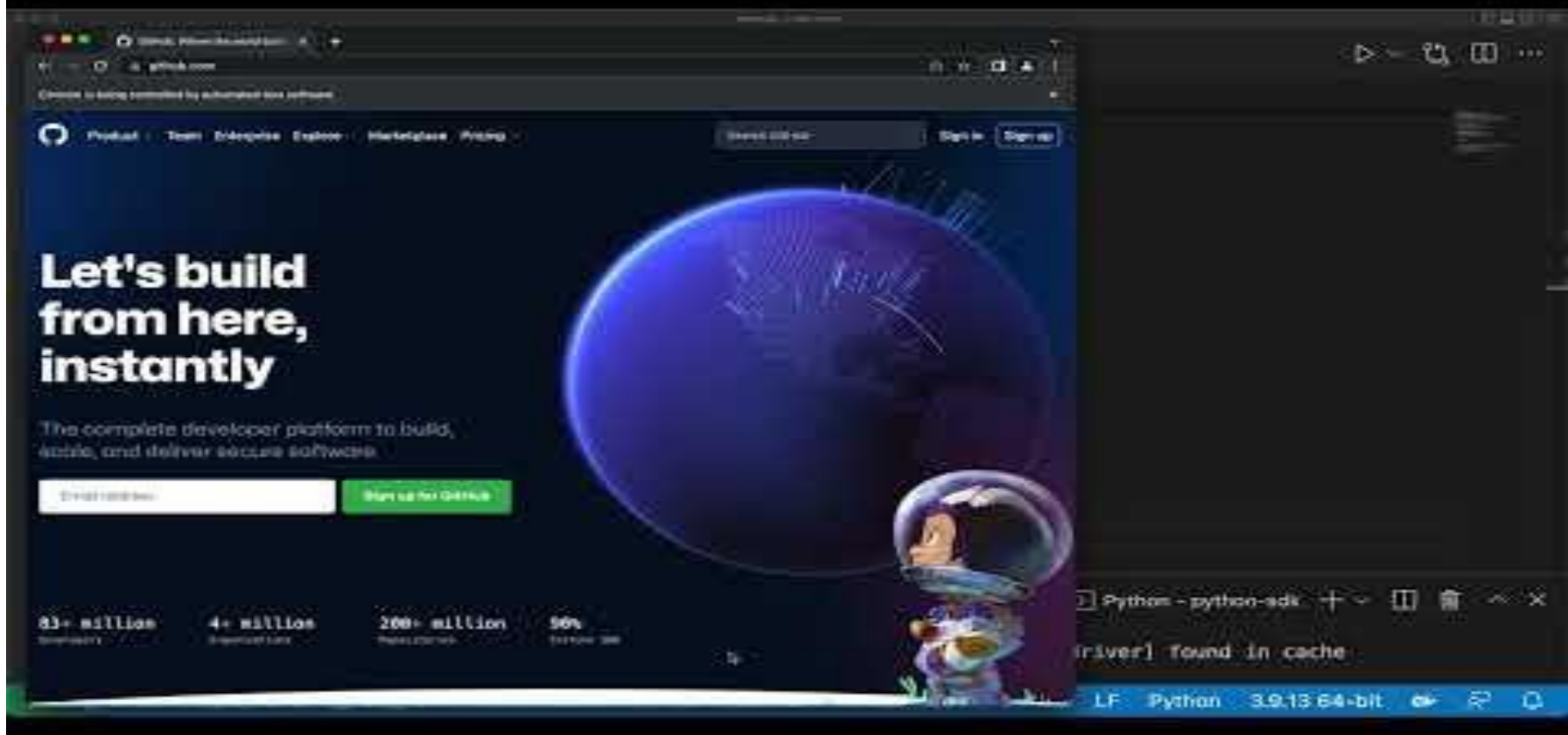
Auto Generate Tests



Test Selection

- Determine what tests to run
- Looks at historical data
 - What code change
 - What tests changed state pass → fail
- Reduced test execution time

Demo



Questions?

Thank you!!

Stay in touch:

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