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Hello!

I AM GIL ZILBERFELD

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Download the code from GitHub

A LONG
TIME AGO
IN A GALAXY
FAR, FAR AWAY...
AT A
TEST.IL MEETUP
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THE CONVERSATION
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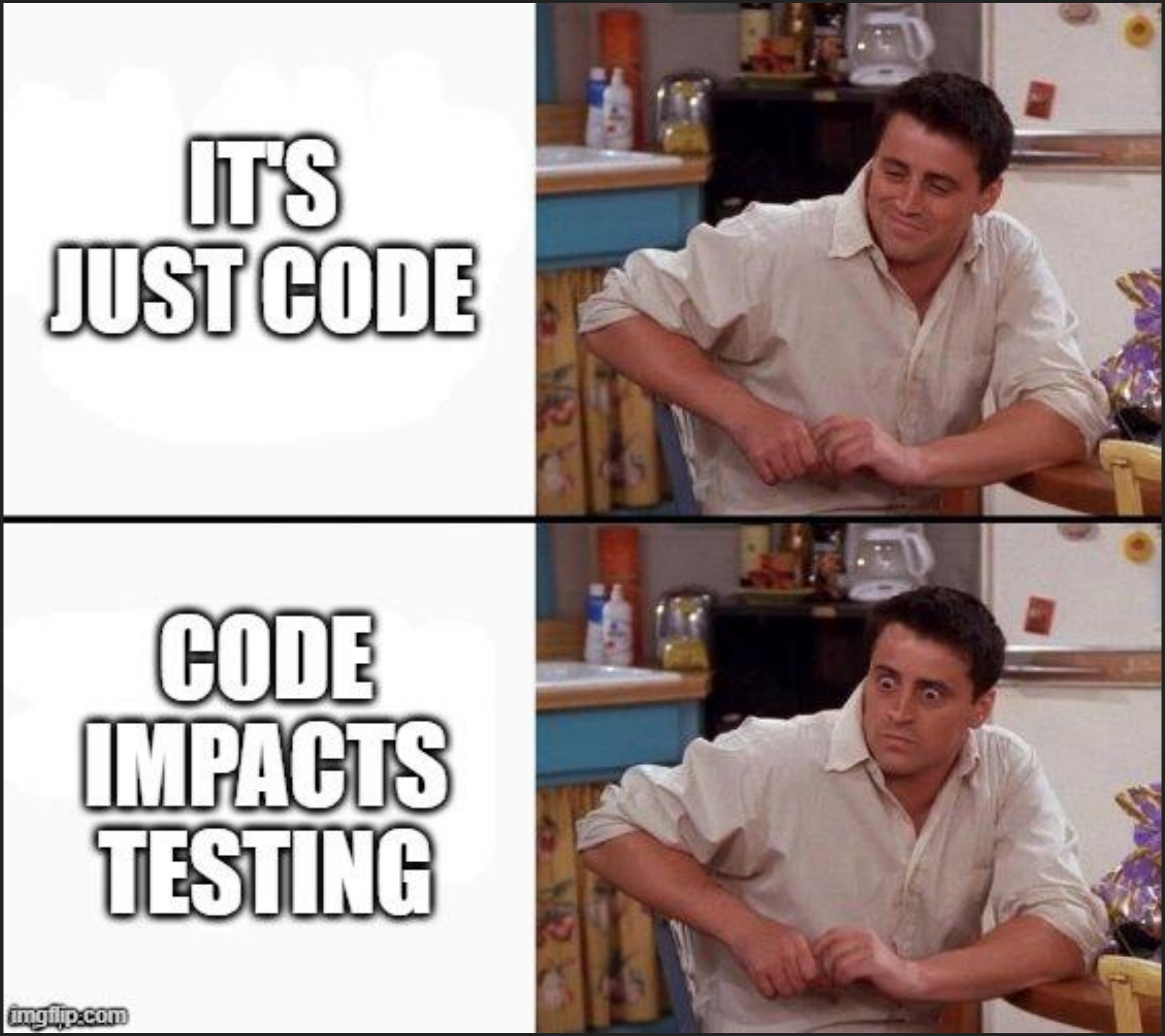
The conversation

- Developers don’t want to change code for tests
- The design is so brilliant already
- They've worked so much at it
- And many more…

Fallacies and misconceptions

- The job is done when code gets pushed
- The black box fallacy
- Code and architecture doesn’t have any visible correlation with testing


IT'S JUST CODE
CODE IMPACTS TESTING
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Developer blind spots

- How the code will be tested
- In what context
- The cost of testing
- The effect of developer testing on system tests

Videos
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Weather
Presidential Alert
NOT MY PROBLEM
Dismiss
iTu
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Produce code

That works

And easy to maintain

Videos
Maps
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Dismiss
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Report the most comprehensive information to stakeholders

How do we align the mission statements?

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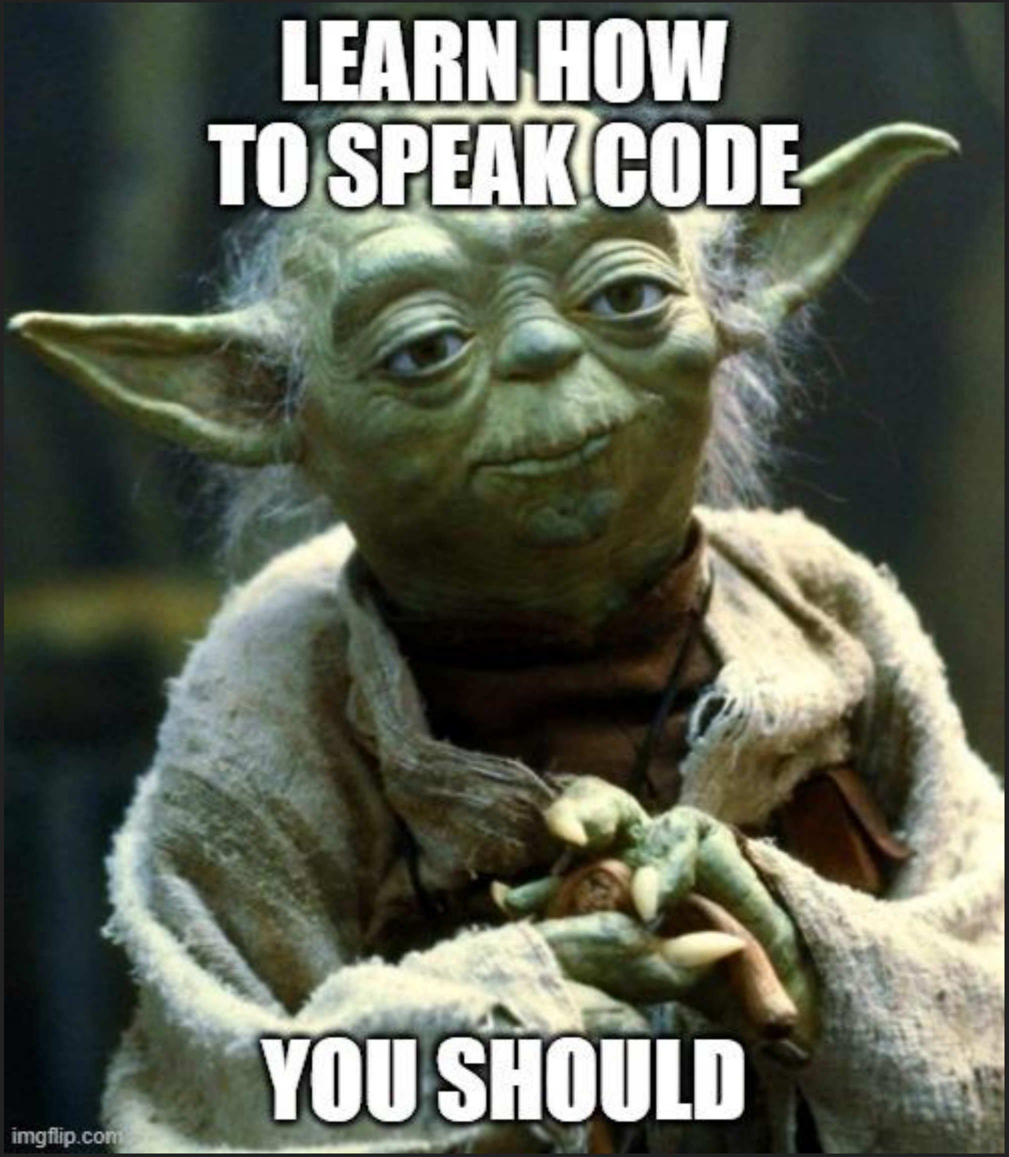
LEARN HOW
TO SPEAK CODE
YOU SHOULD
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DEMO DAY
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NYPD
DUPLICATION
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Duplication

- The problem
  - Same code appears in multiple locations
- The impact
  - We need to check multiple scenarios for better coverage and reporting
  - Both internal and APIs
  - More testing effort, and usually less coverage
- Let's see an example

Duplication

- The solution
  - Identify the pattern
  - Refactor into libraries
- But, but, but…
  - No buts
  - Really

VISIBILITY
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Visibility

- The problem
  - Cannot call code directly or access it for assertions
- The impact
  - We need to write complex scenarios for better coverage and reporting
  - If we can at all
  - More setup effort, and usually less coverage
- Let’s see an example

Visibility

- The solution
  - Make it public!
  - Expose methods and data through APIs
- But, but, but…
  - “Someone may call it”
  - Using a programming language construct for hiding something should really be the last resort
  - APIs need management
  - Maybe it should be public

DEPENDENCY INJECTION
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Dependency Injection

- The problem
  - Dependencies are created and controlled only inside the code
- The impact
  - We cannot modify, mock or replace them
  - Test scenarios cannot run
  - Or require mind-bending setup
  - In which case, you probably just won’t run it
- Let’s see an example

Dependency injection

- The solution
  - Pass the dependency as a parameter
  - Or use a DI framework
  - Or use a redirection configuration
  - Now we can use mock dependencies for different scenarios
- But, but, but…
  - “My brilliant design!”
  - Is not testable, therefore its brilliance is in question
  - By the way, Spring is a dependency too

MOCKABILITY
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Mockability

- The problem
  - Dependencies are created without ability for extension
- The impact
  - We cannot mock or replace them
  - Test scenarios cannot run
  - Or require mind-bending setup
  - In which case, you probably just won't run it
- Let's see an example

Mockability

- The solution
  - Don’t make them final (or sealed, or whatever)
  - Use replaceable dependencies with DI like in-memory databases and mocked servers
- But, but, but…
  - “My brilliant design!”
  - You keep saying that word, I’m not sure it means what you think it means

MODULARITY
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Modularity

- The problem
  - Code has a lot of dependencies in it
  - Breaking the SRP and ISP (SOLID)
  - Services are big
- The impact
  - Test setup requires supplying many dependencies than the tested code really needs
  - More setup effort, if we don’t break in the process
  - Test run is longer
- Let’s see an example

Modularity

- The solution
  - Break it down!
  - Smaller code and small services
  - Less dependencies mean smaller setup
- But, but, but…
  - “My brilliant design!”
  - Really means: “I’m not changing my code for you (and maybe it’s too risky)”
  - It makes for other problems like god files, classes and methods. Maintenance is horrid. Don't do that.

Being part of the conversation

Before, during and after coding

Joint meetings

- Design reviews
- Code reviews
- Test planning
- Test design
- Test results
- Demos

QUESTIONS
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Asking questions - Design

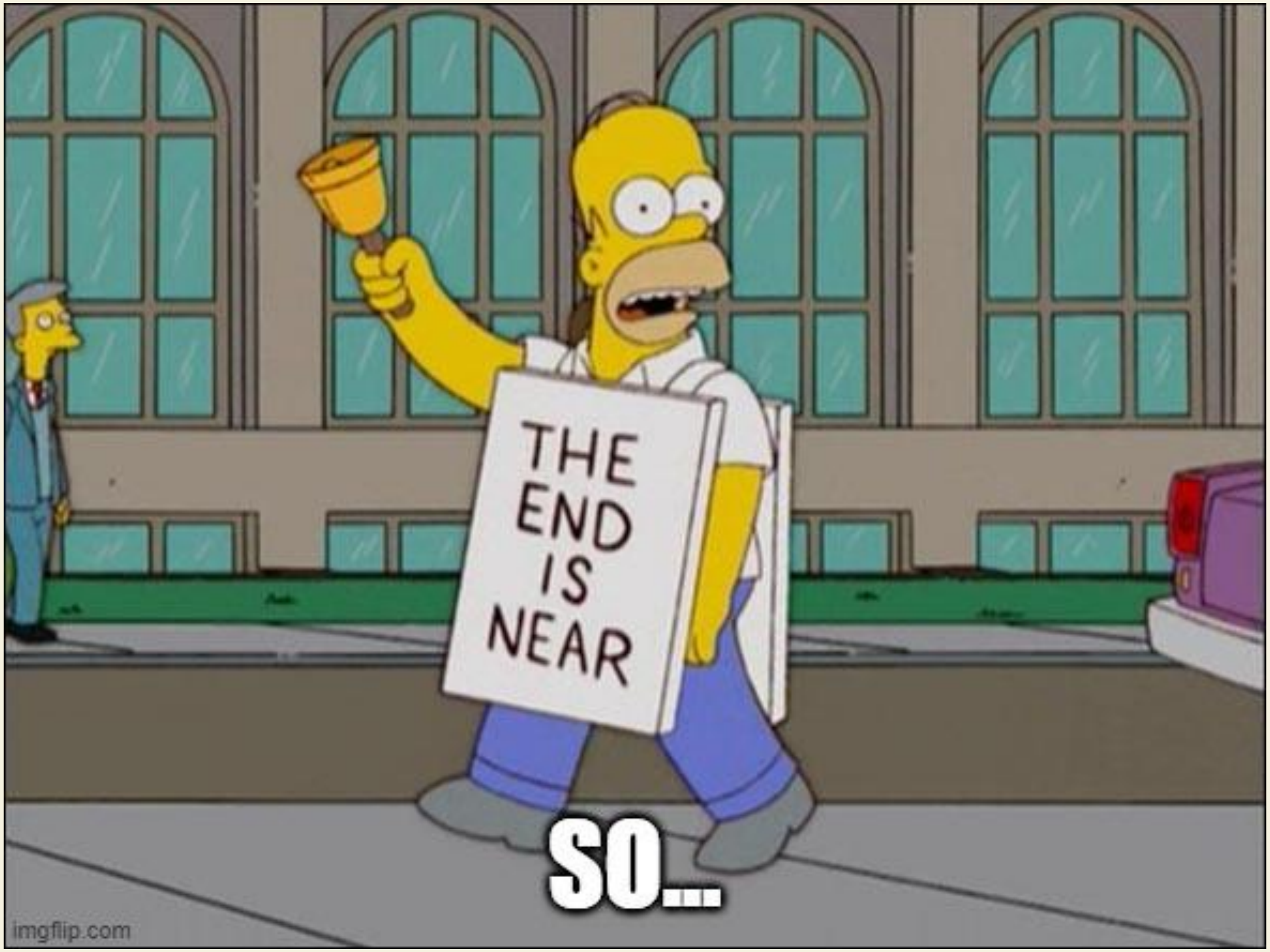
- Where is the risky code?
- What old features will be impacted by the new code?
- What are the dependencies?
- Will we be able to "mock" them?

Asking questions - Planning

- What scenarios are going to be automated?
- By what?
  - Unit, integration, API
- What don’t they cover?
- What is the cost for improving testability?
  - What do we get in return?
- What should we prepare so we can test scenarios after that?

Retros

- What makes it hard to test?
- What makes it easy to test?
- Also, define hard and easy


THE END IS NEAR
SO...
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"If you brought us a functionally correct design that required our app to run on a million AWS instances, we'd casually say "no, that's not valid."

https://www.geepawhill.org/2020/12/11/the-steering-premise/

If a design is not testable, it is not a valid design

We need to help the developers do their job

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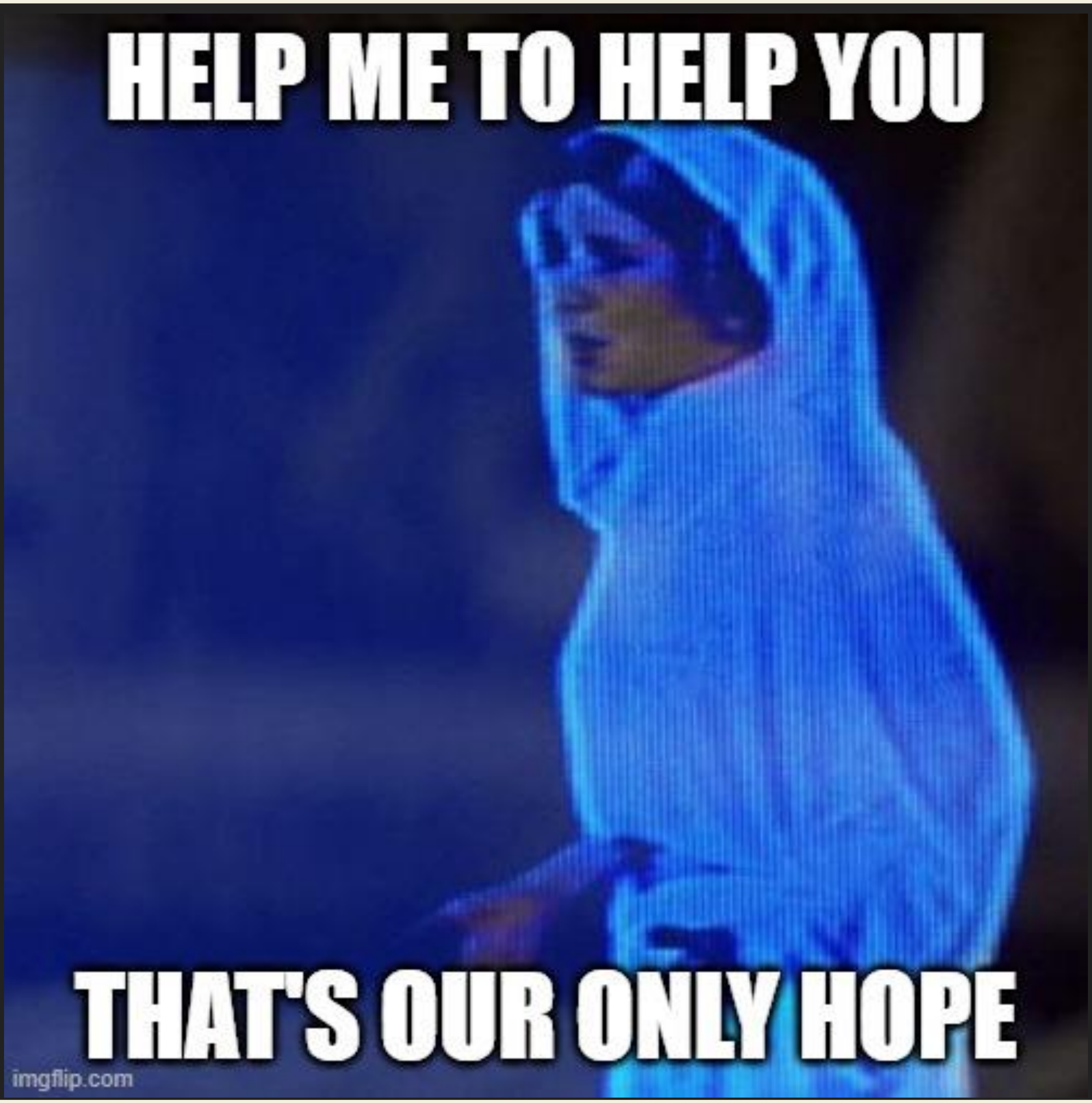
HELP ME TO HELP YOU
THAT'S OUR ONLY HOPE
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Thanks!

ANY QUESTIONS?

You can find me at:

LinkedIn: Profile, Company

XING: Profile, Group:

Twitter: @gil_zilberfeld

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