

Exploring the microbiological world with OpenWhisk and Rust

A PRESENTATION BY

**the agile
monkeys.**

About me

- PhD in Electronics
- I love technology and IoT
- I create my own beers
- Software Developer at The Agile Monkeys



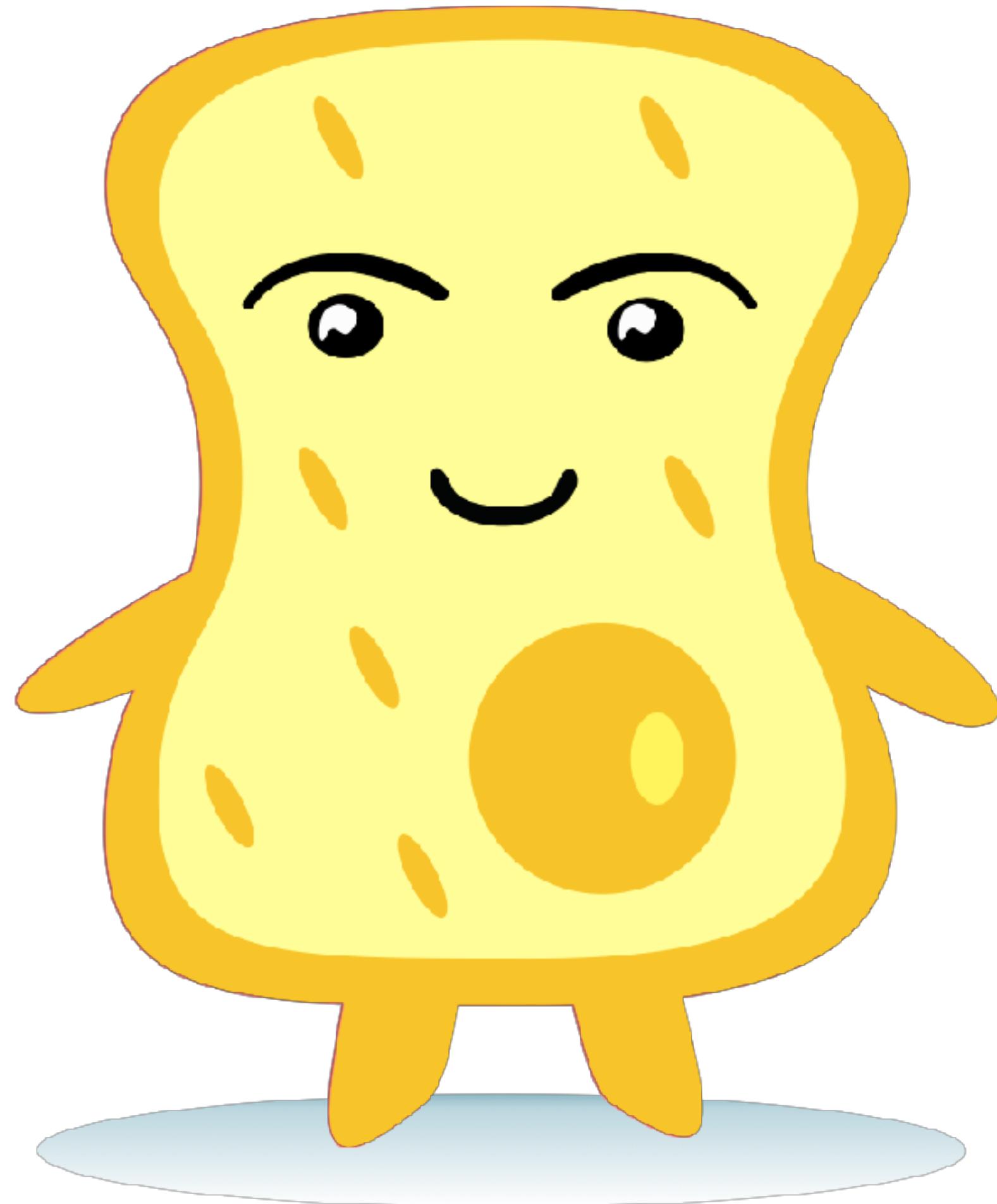


Name:
Peter AwesomeBeer
Employment:
Quality Manager



Notes:

- 1) Committed to quality
- 2) Chemistry geek
- 3) Improve Production Process

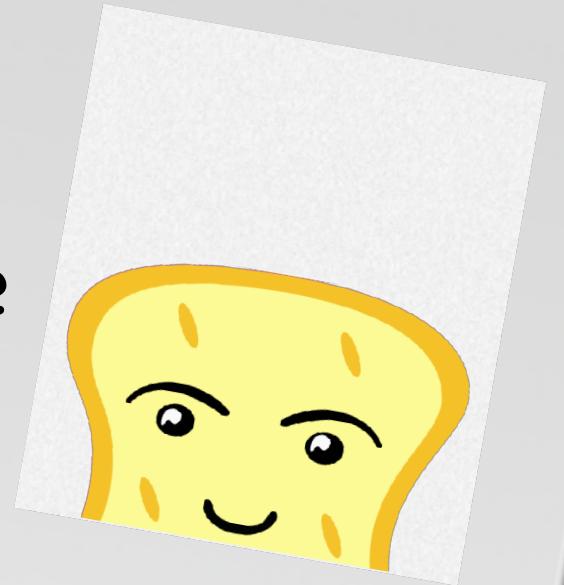


Name:

Saccharomyces cerevisiae

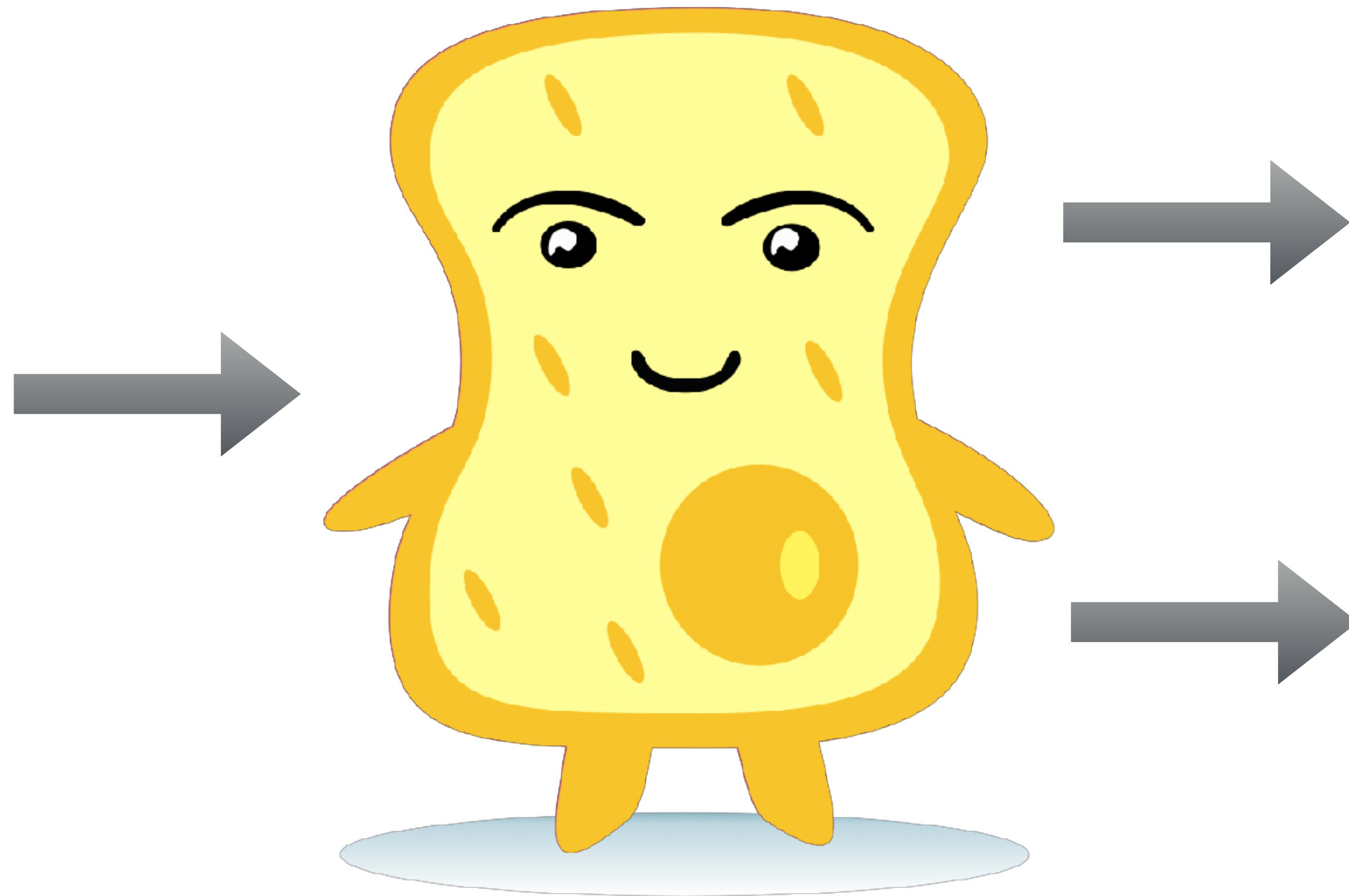
Employment:

Ferment beer

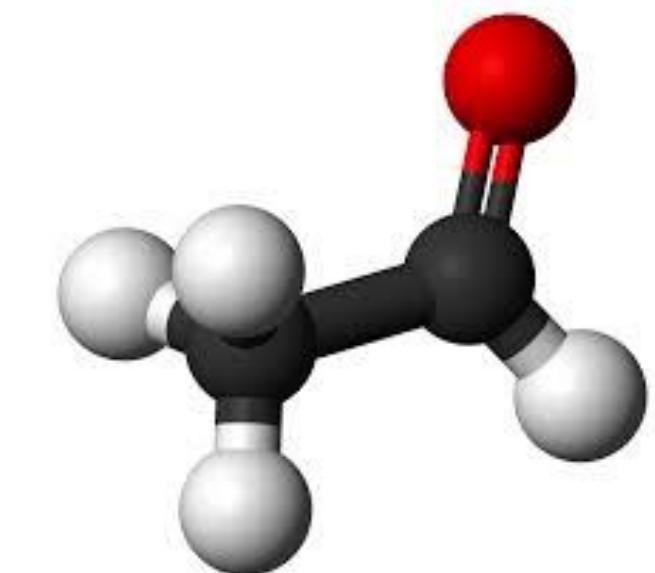


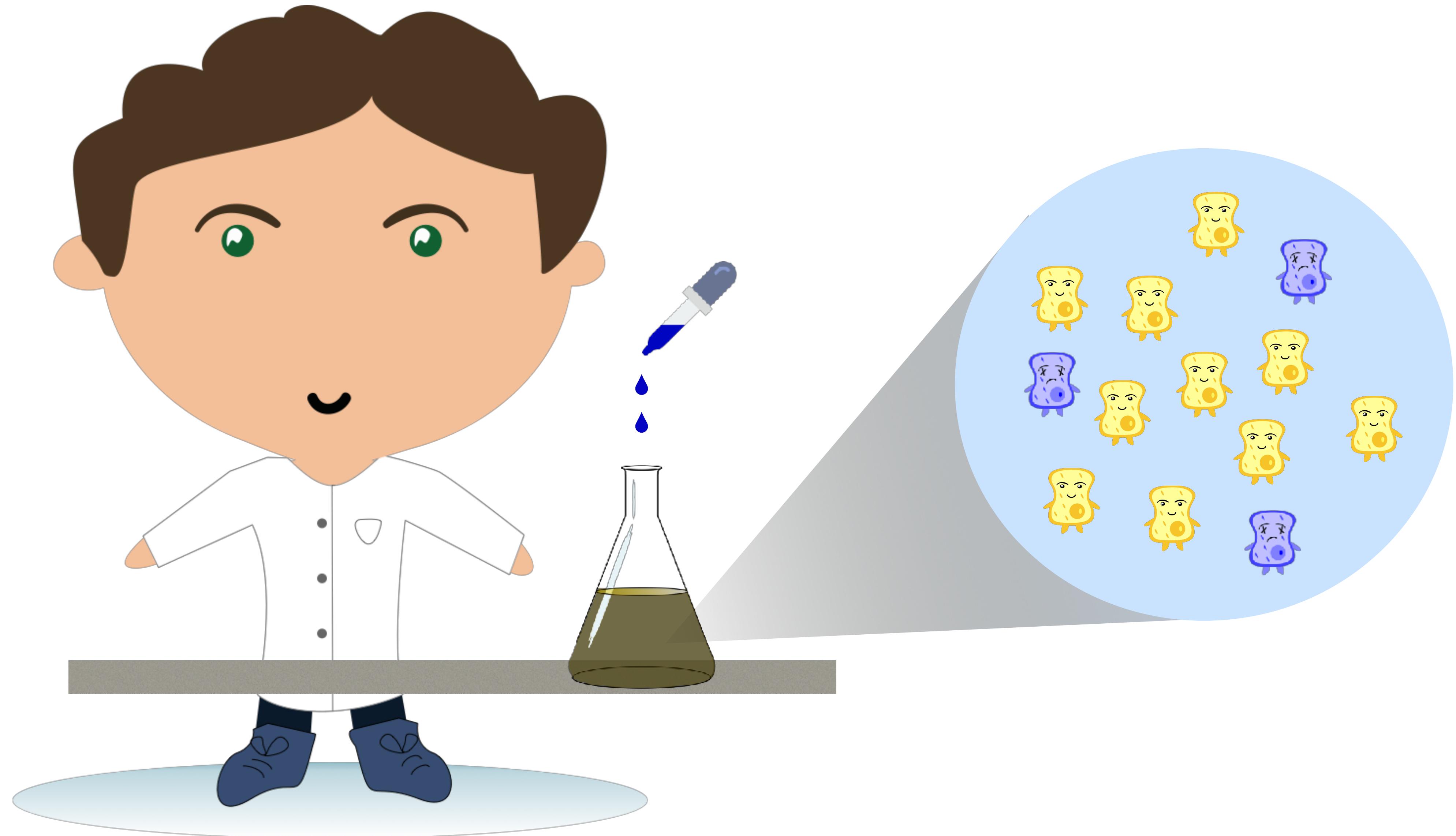
Notes:

- 1) Eat sugar
- 2) Big colonies
- 3) Not warm places

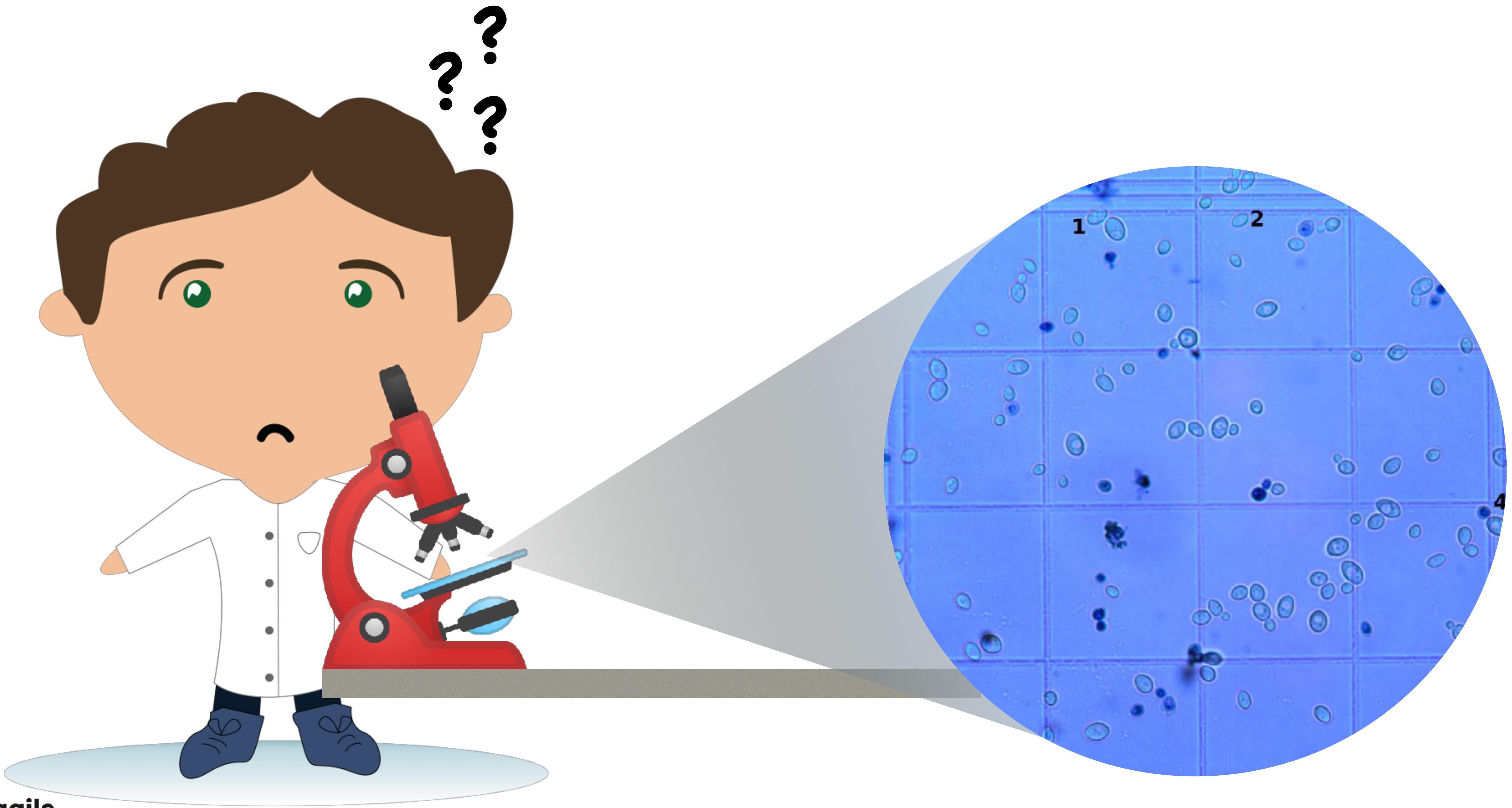


CO₂

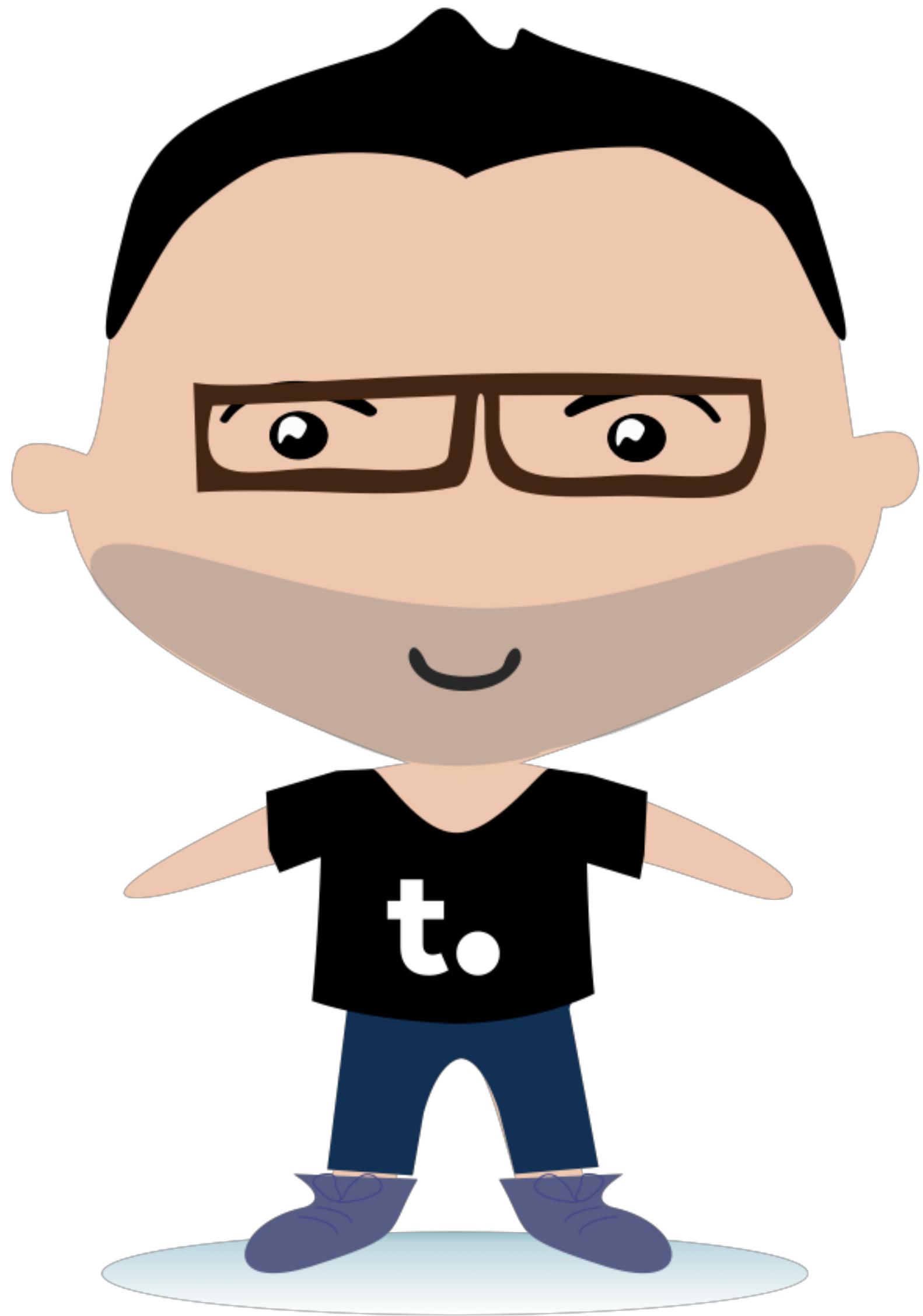




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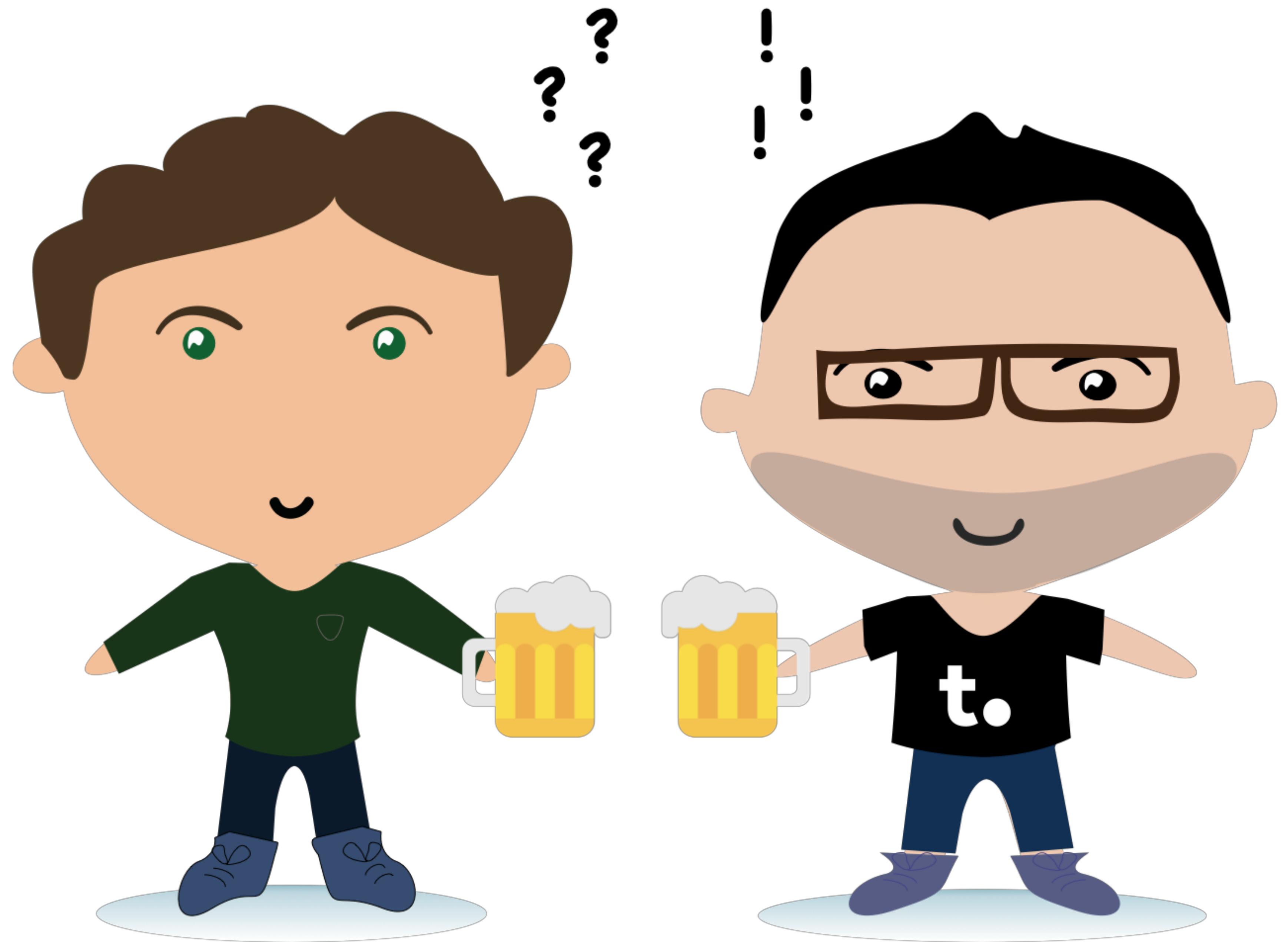


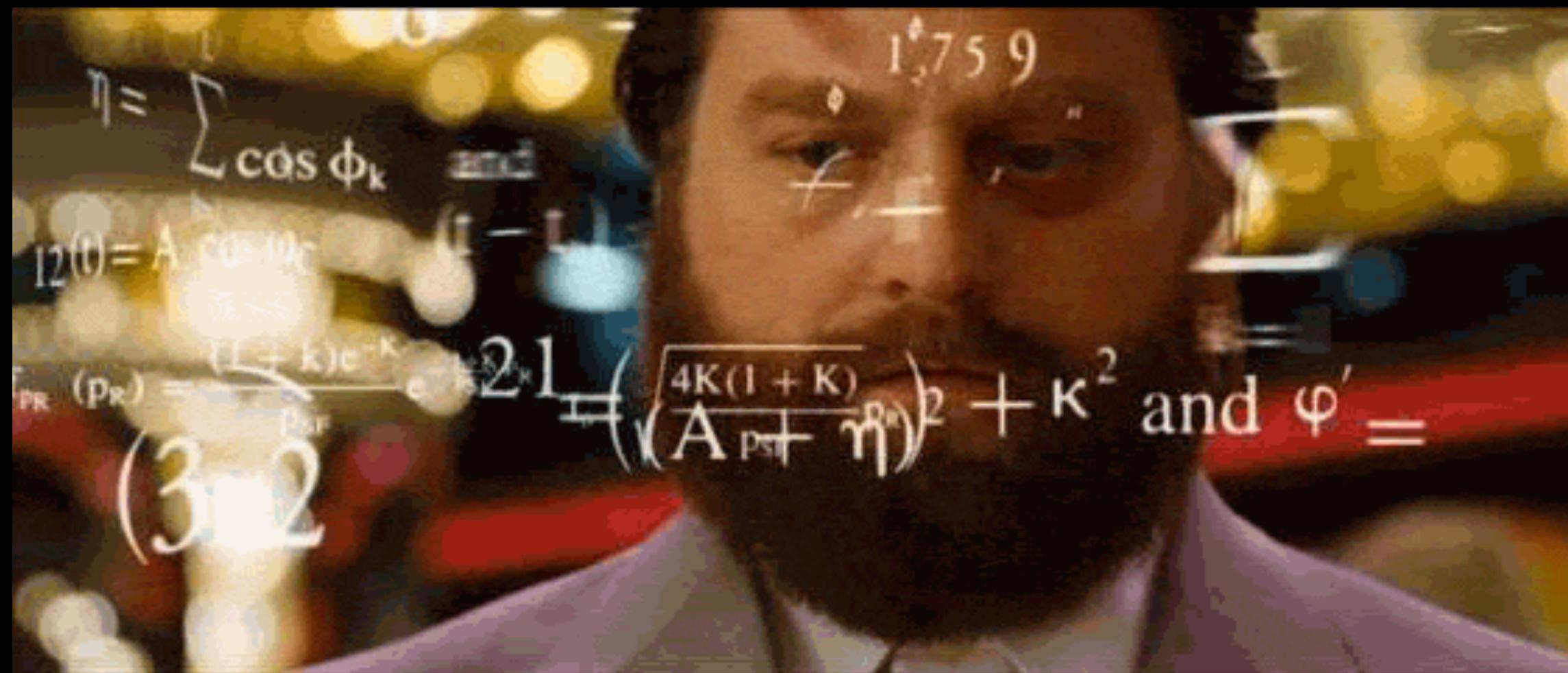
Name:
Rob SeverlessGeek
Employment:
Software Developer



Notes:

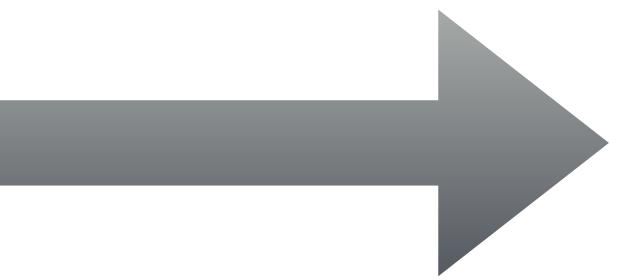
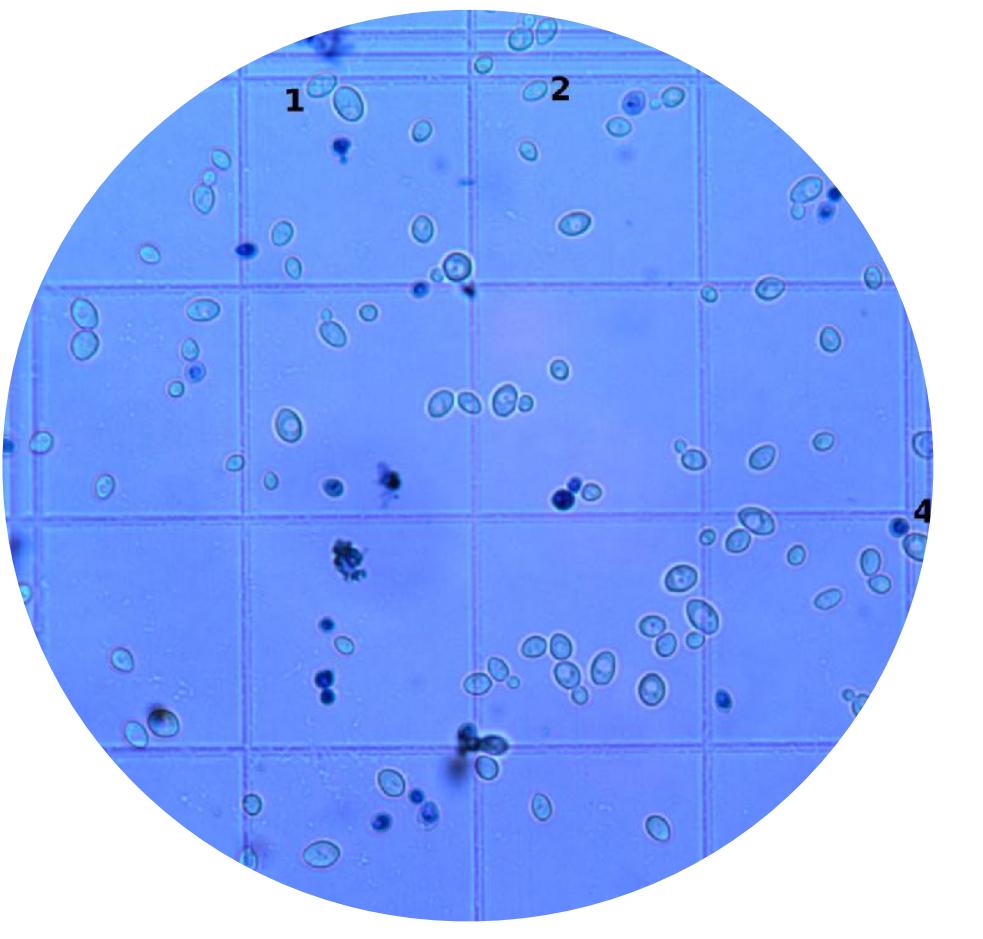
- 1) Serverless Technologies
- 2) New Challenges
- 3) Loves beers



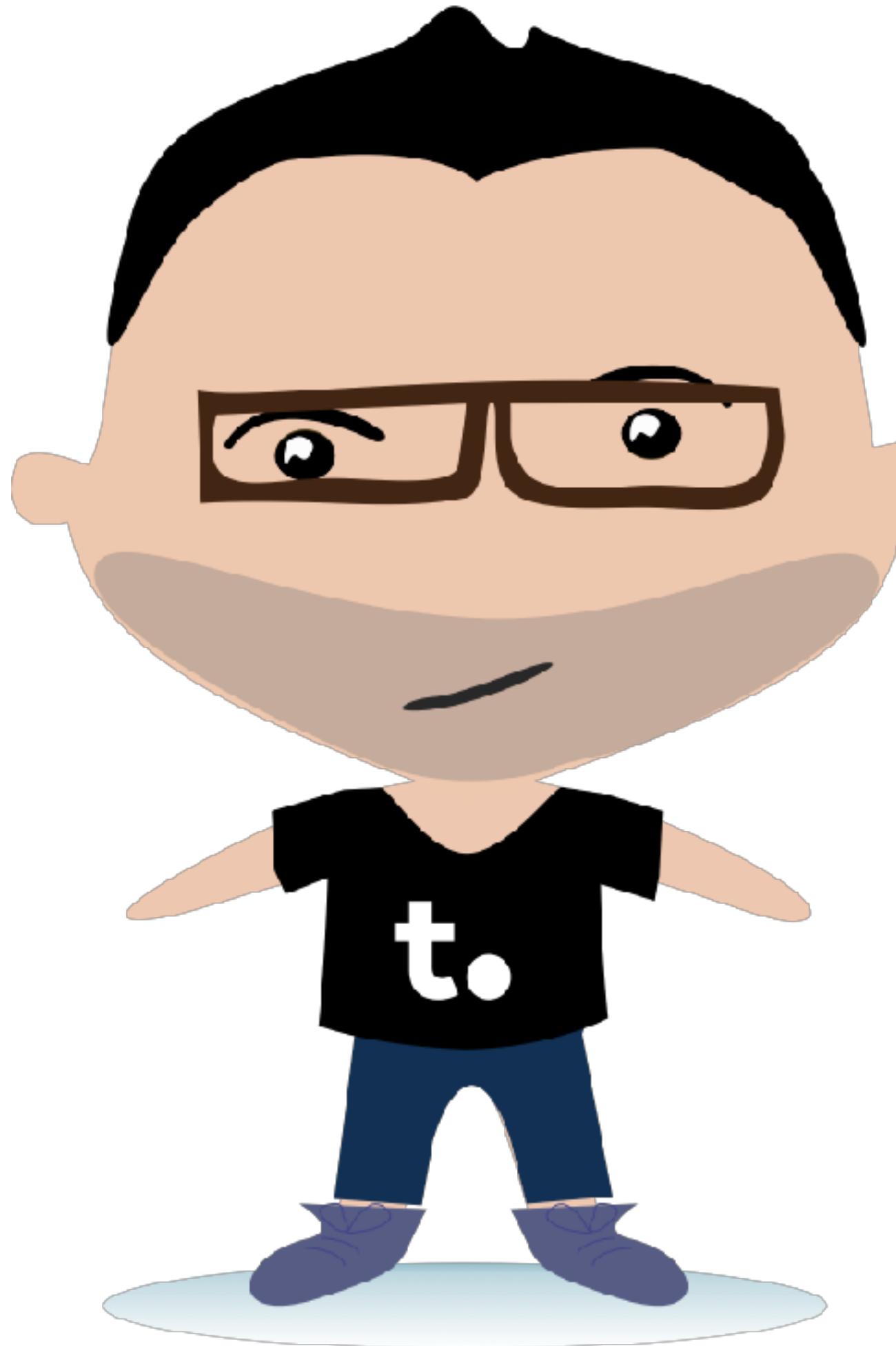


Initial system requirements

- Serverless system
- Receives an image as input
- Returns the number of cells



Number of
A cartoon character of a blue, blob-like creature with a sad expression, featuring two small 'X' marks for eyes and a frown.



Wait a Minute!!
What if...

Peter wants to add
more new features

We need a
generic solution





**I LOVE IT WHEN A PLAN
COMES TOGETHER**

Improved system requirements

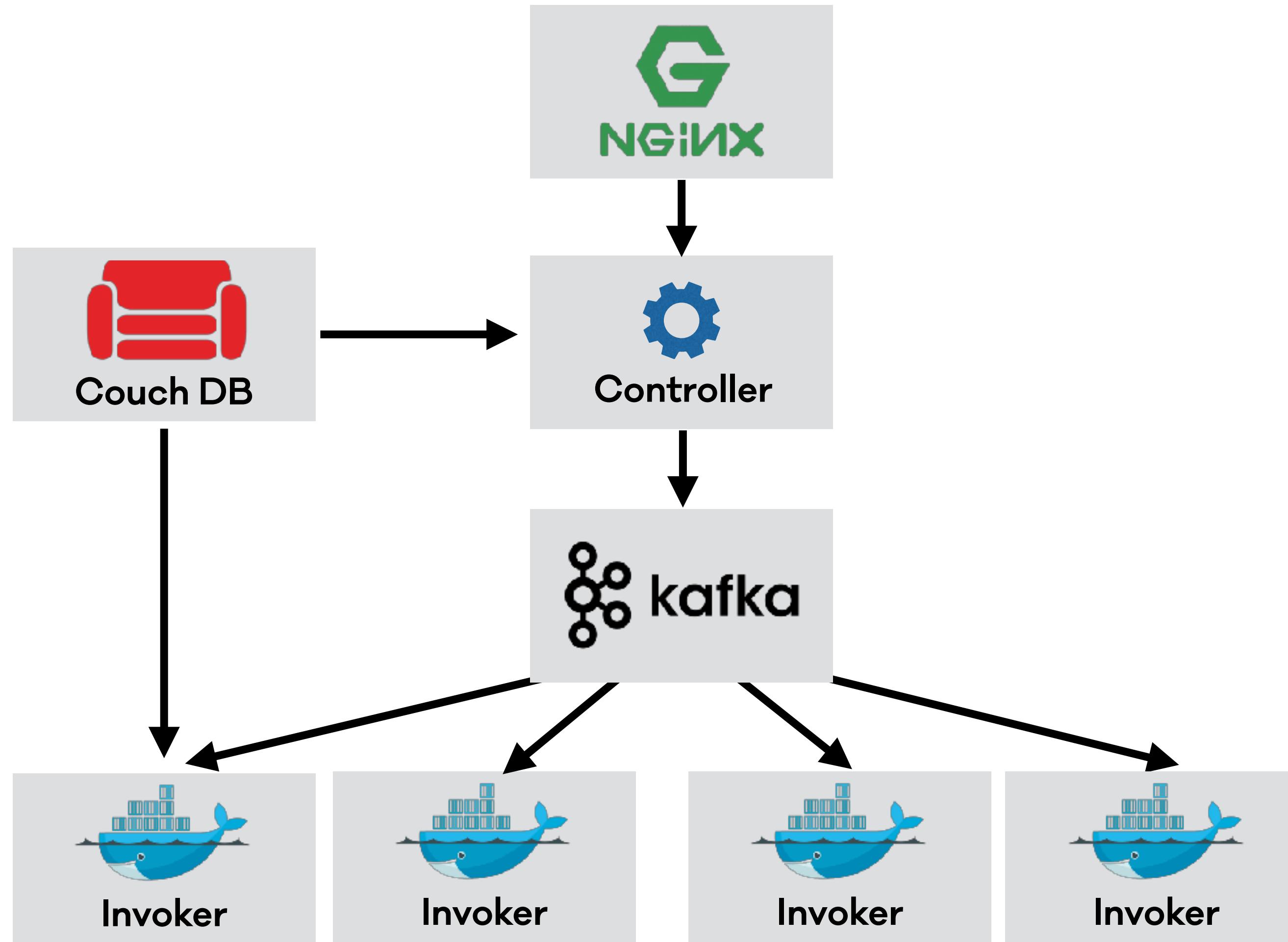
- Serverless system
- Receives an image as input
- Receives a sequence of filters
- Returns the result of the sequence



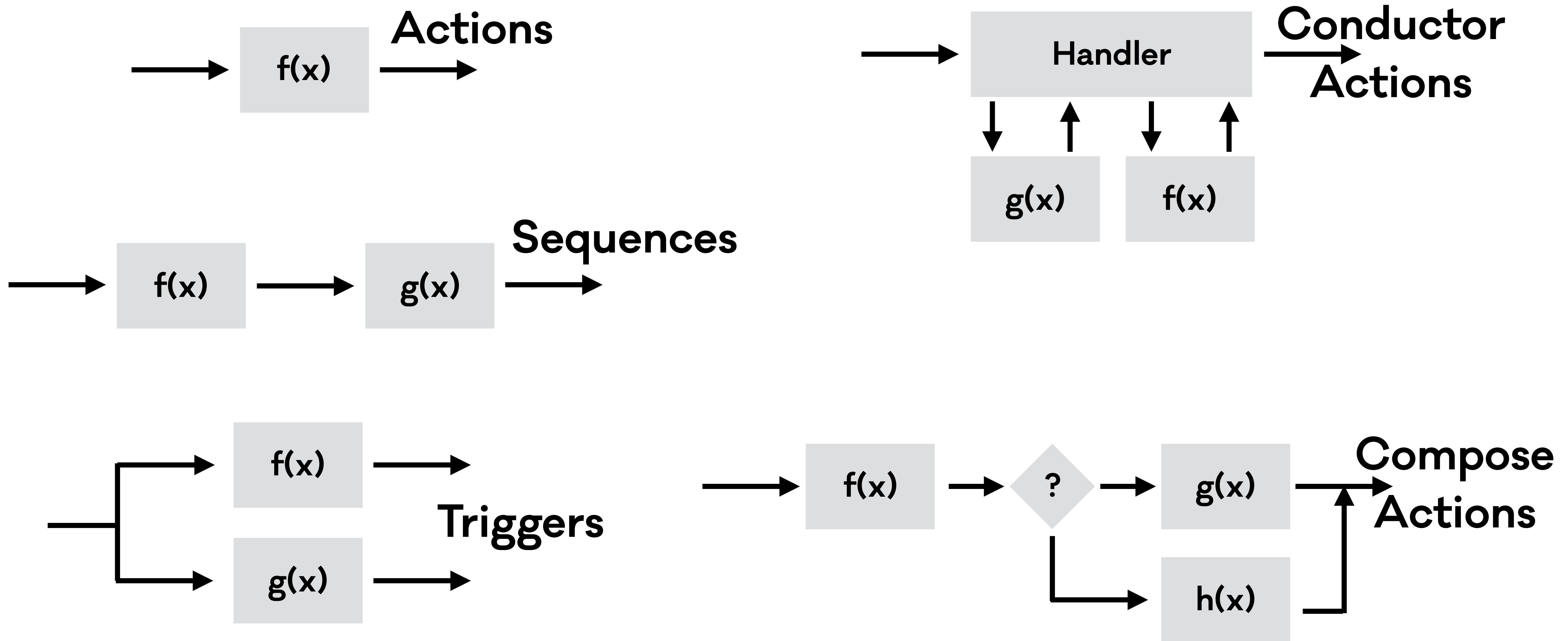
- Serverless platform developed under Apache Software Foundation.
- Adopted by IBM and Adobe
- Multi language
- Easy local development with Docker



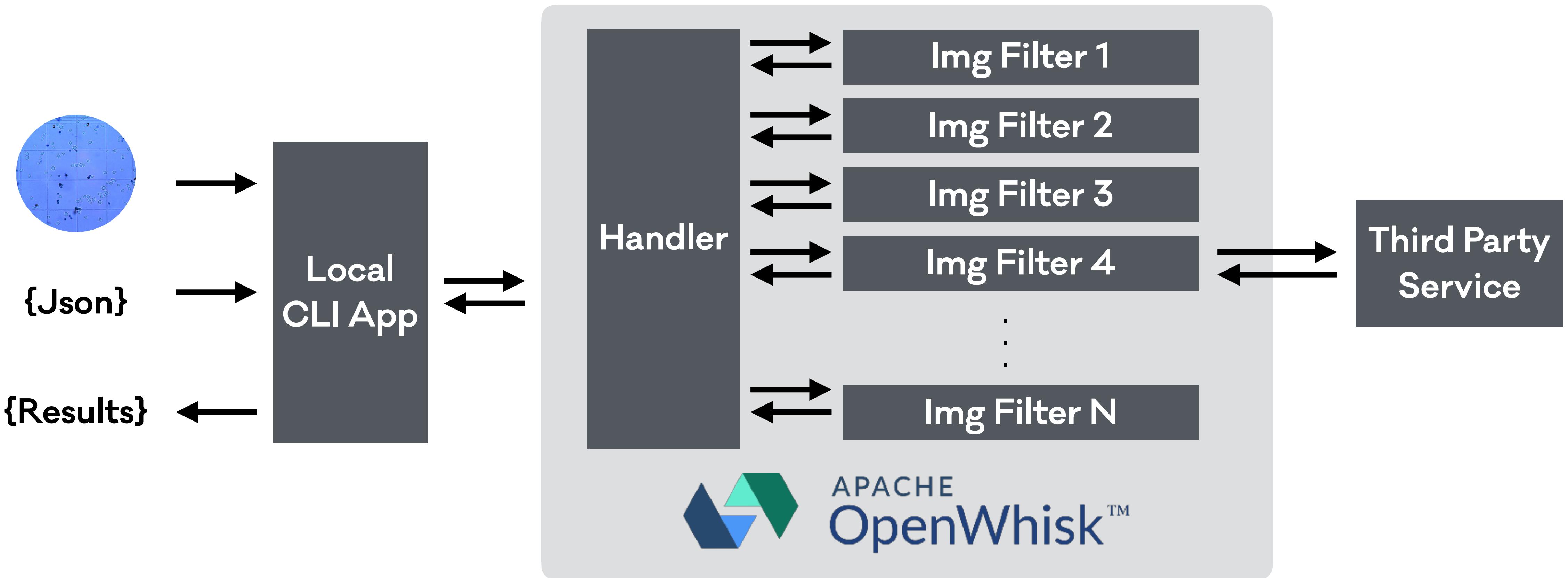
OpenWhisk Architecture



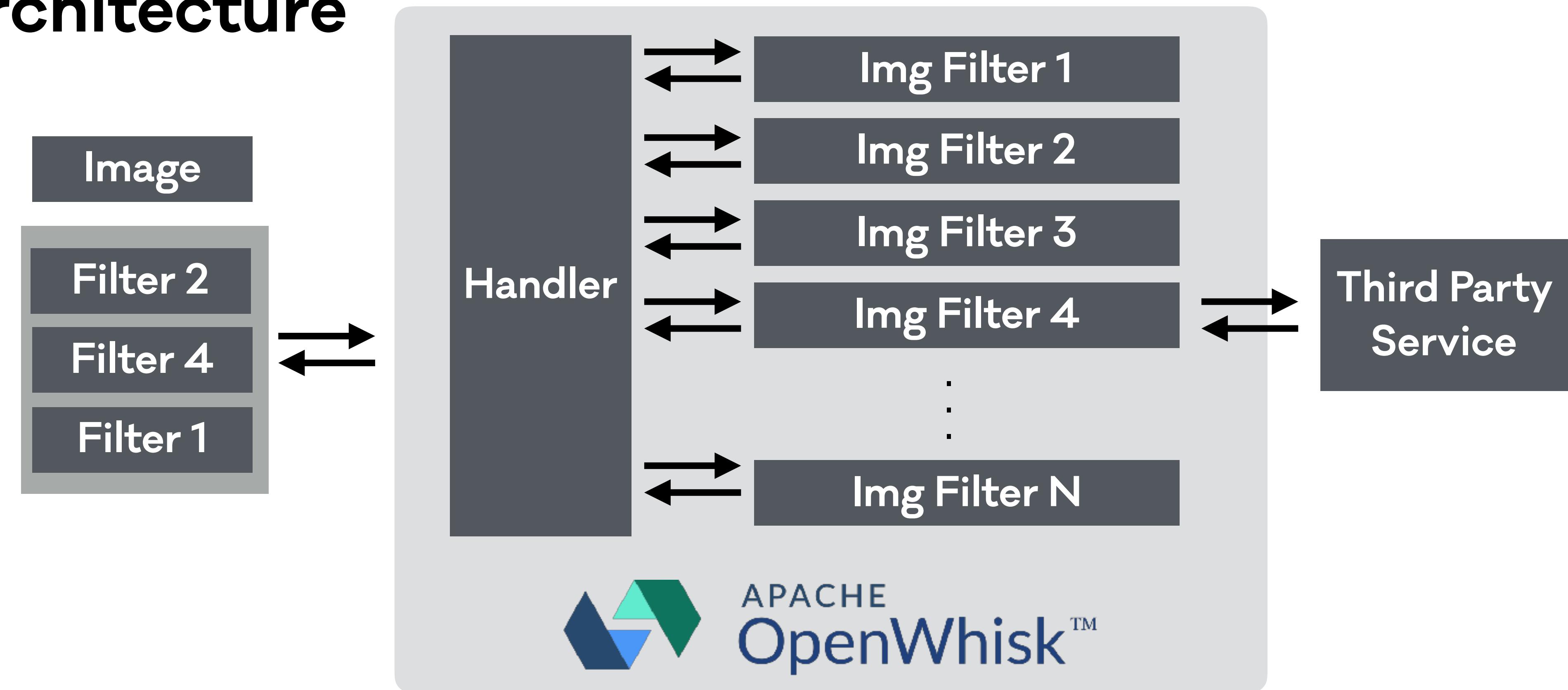
OpenWhisk Toolbox



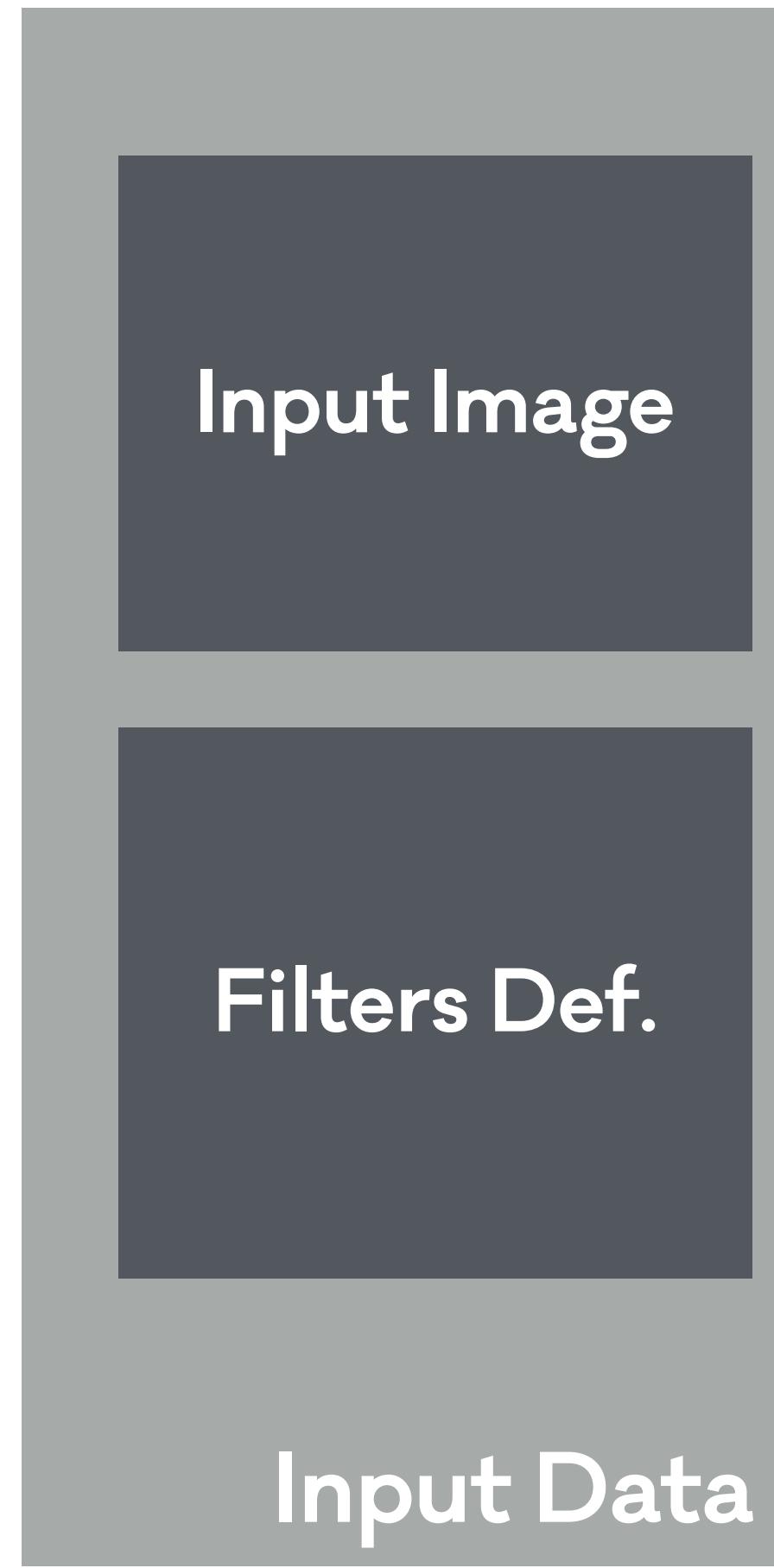
Serverless Architecture



Serverless Architecture

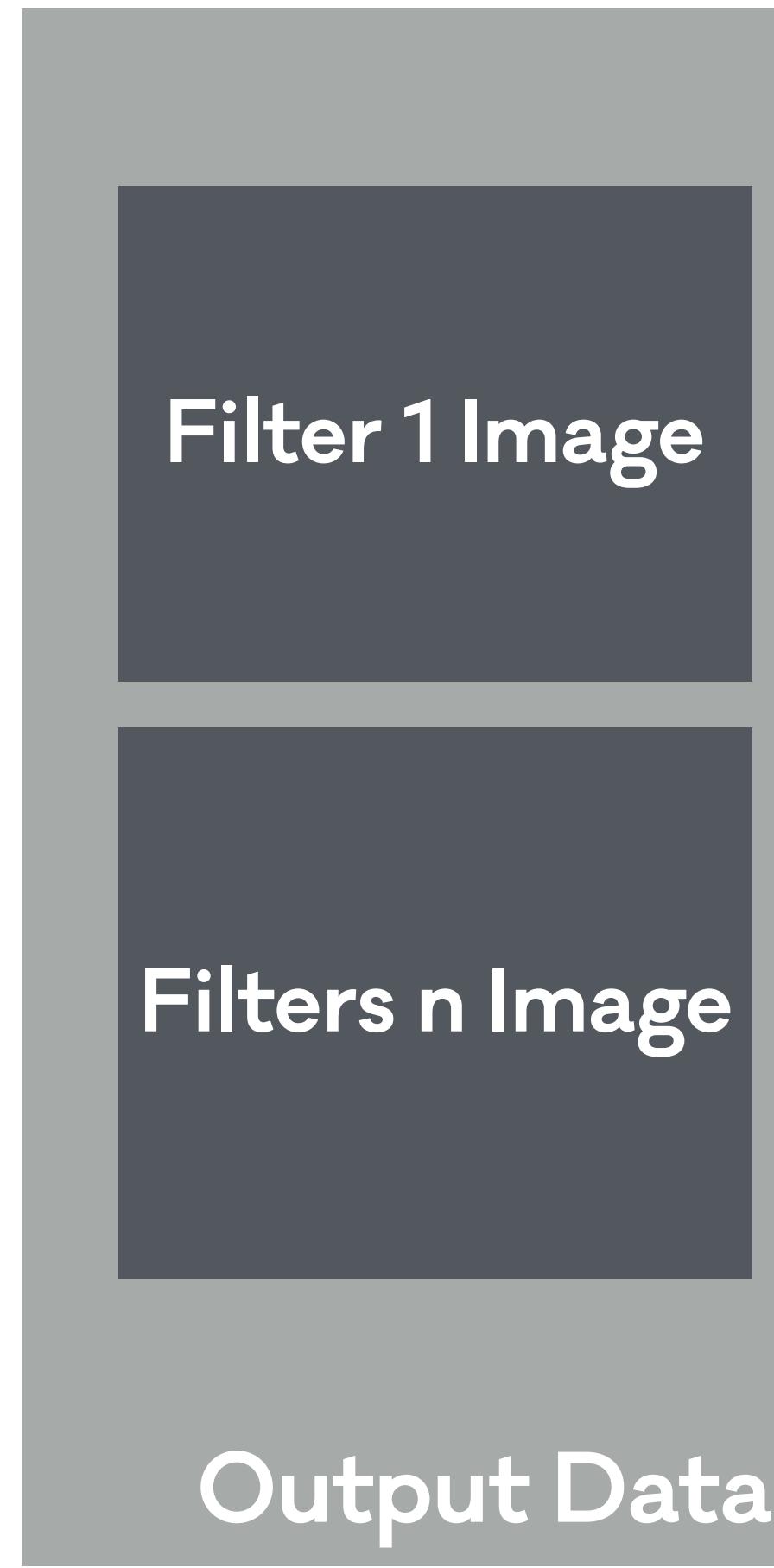


Data Domain definition



```
{  
  "image":{  
    "data":"array of pixels",  
    "width":"image width",  
    "height": "image height"  
  },  
  "sequence": [  
    {  
      "filterName":"filter name",  
      "params": [  
        "nullable array of strings"  
      ]  
    }  
  ]  
}
```

Data Domain definition

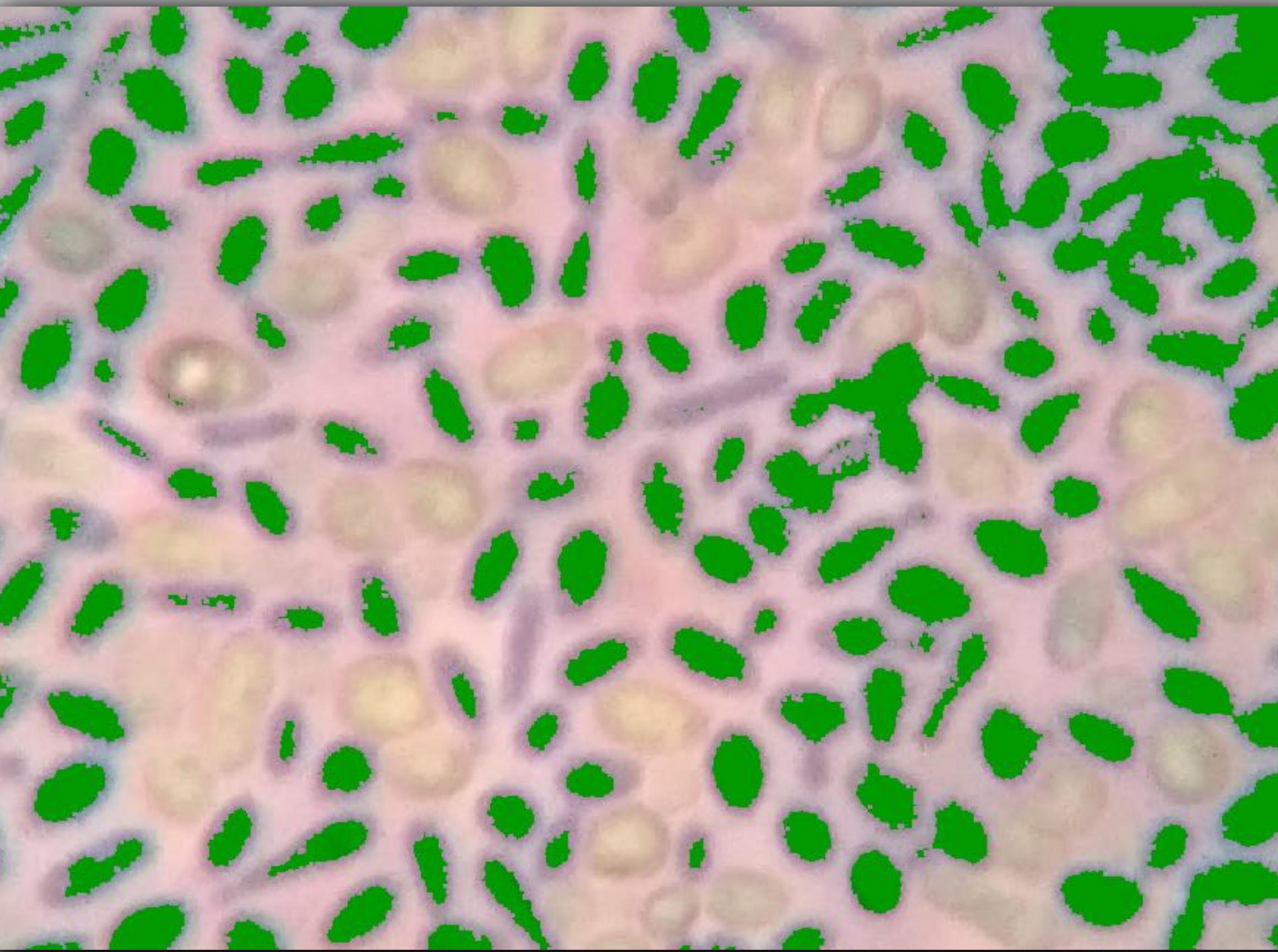
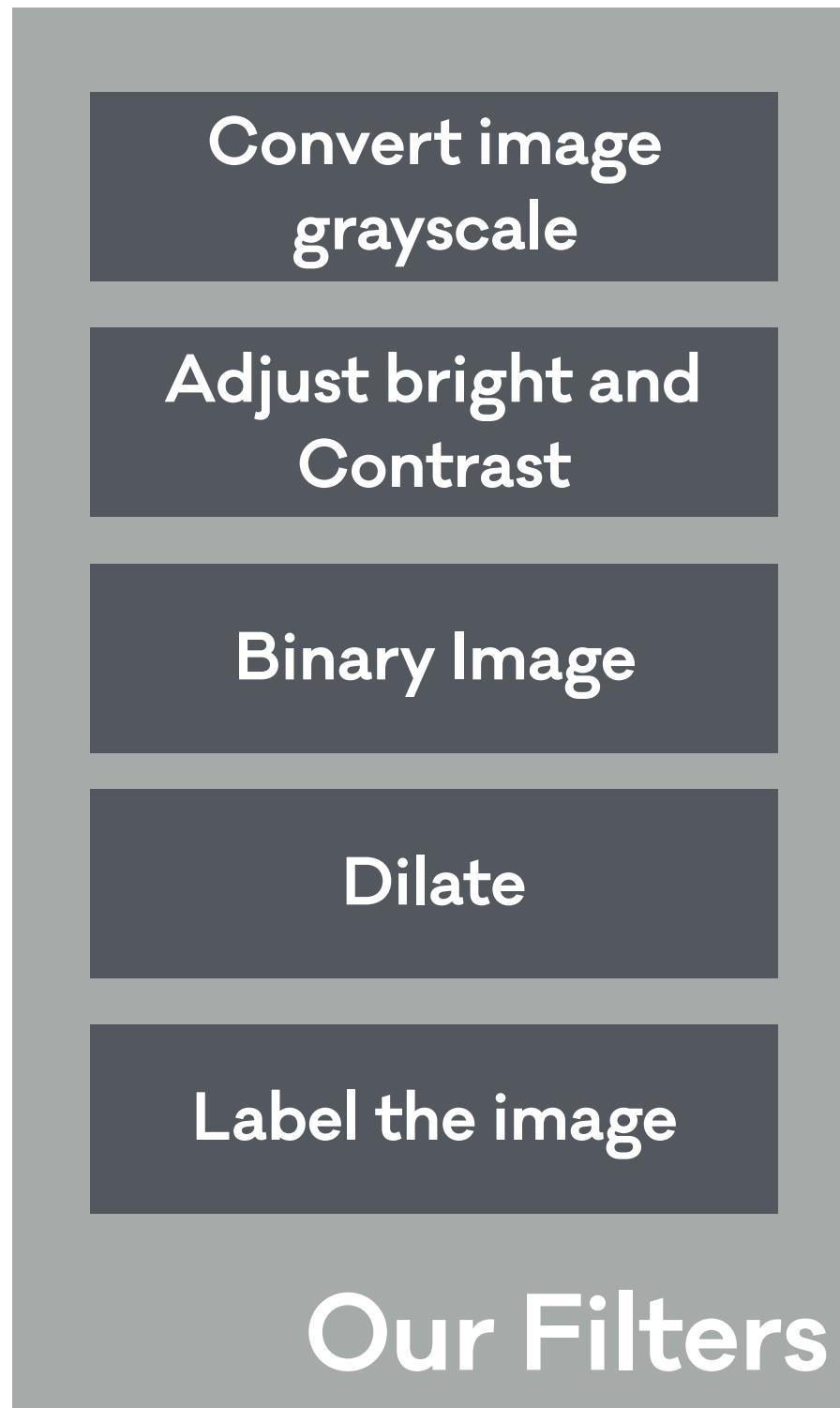


```
● ● ●
```

```
{"results": [ { "data": "array of pixels", "width": "image width", "heigth": "image heigth" }, { "data": "array of pixels", "width": "image width", "heigth": "image heigth" } ] }
```

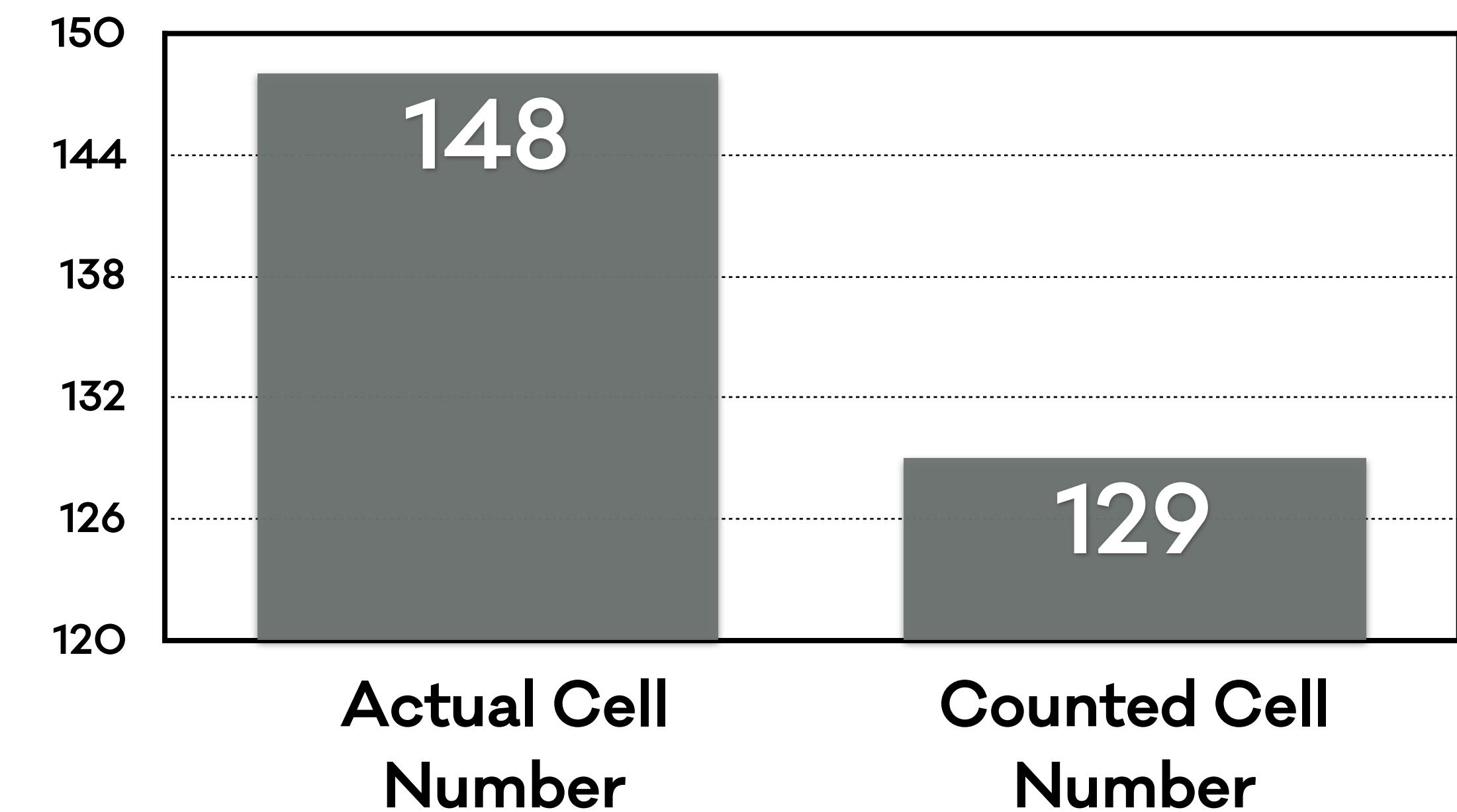
The screenshot shows a terminal window with a dark background. At the top, there are three colored dots: red, yellow, and green. Below them, the JSON output is displayed. The JSON structure consists of an array of objects under the key "results". Each object contains three properties: "data", "width", and "heigth". The values for "data" are described as "array of pixels", and the values for "width" and "heigth" are described as "image width" and "image heigth" respectively.

Solving Peter's problem



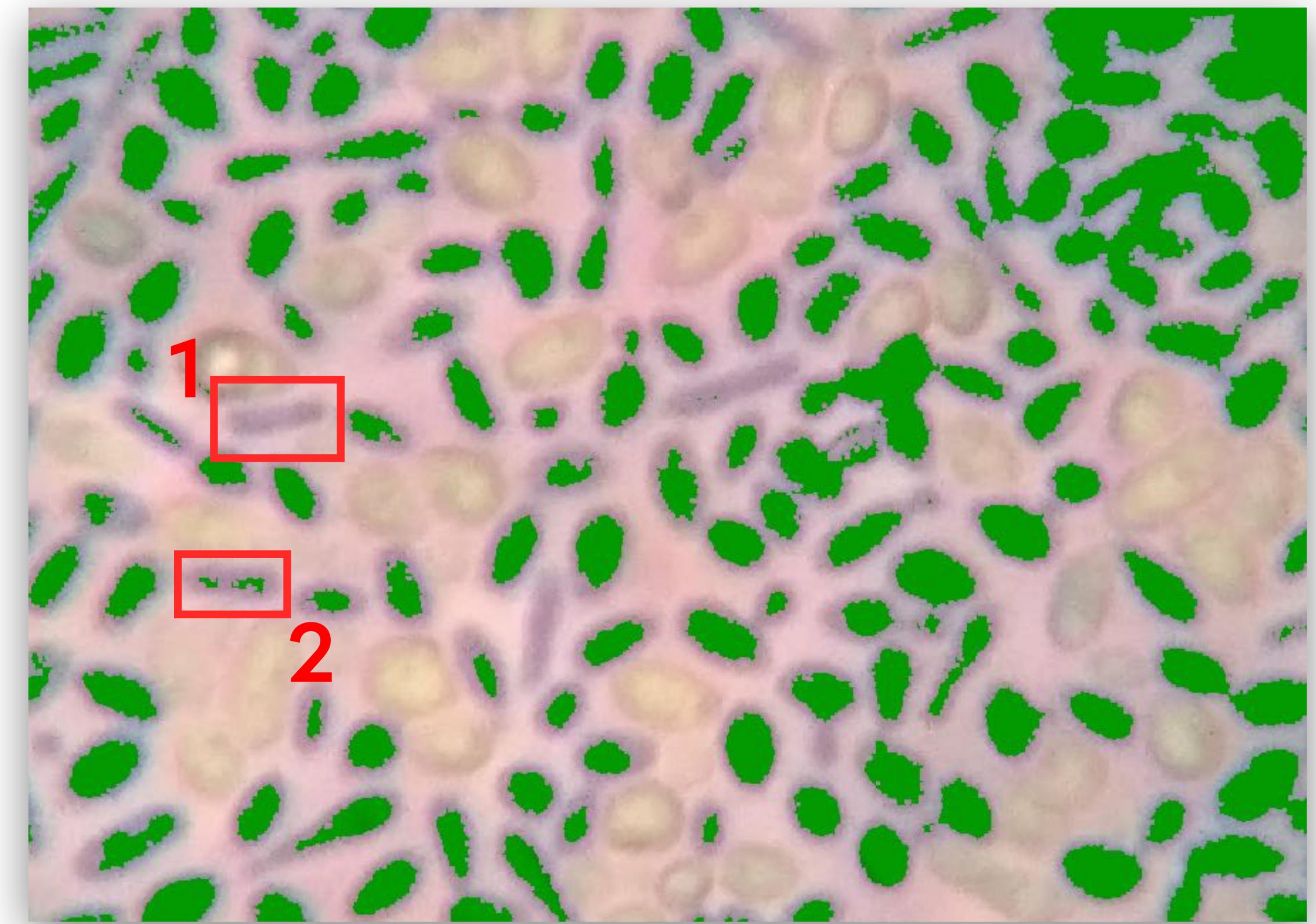


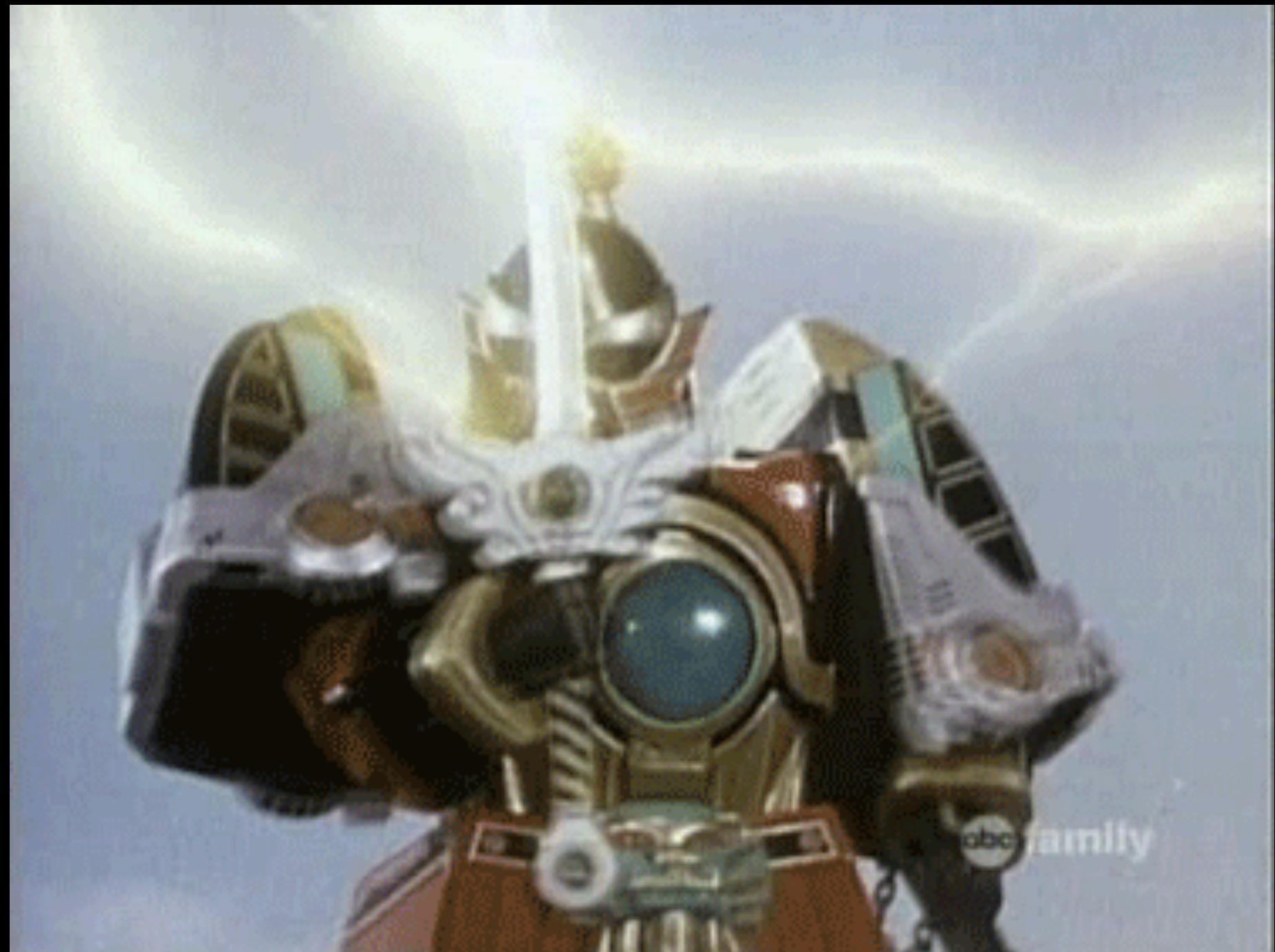
Results



Accuracy 87%

Results





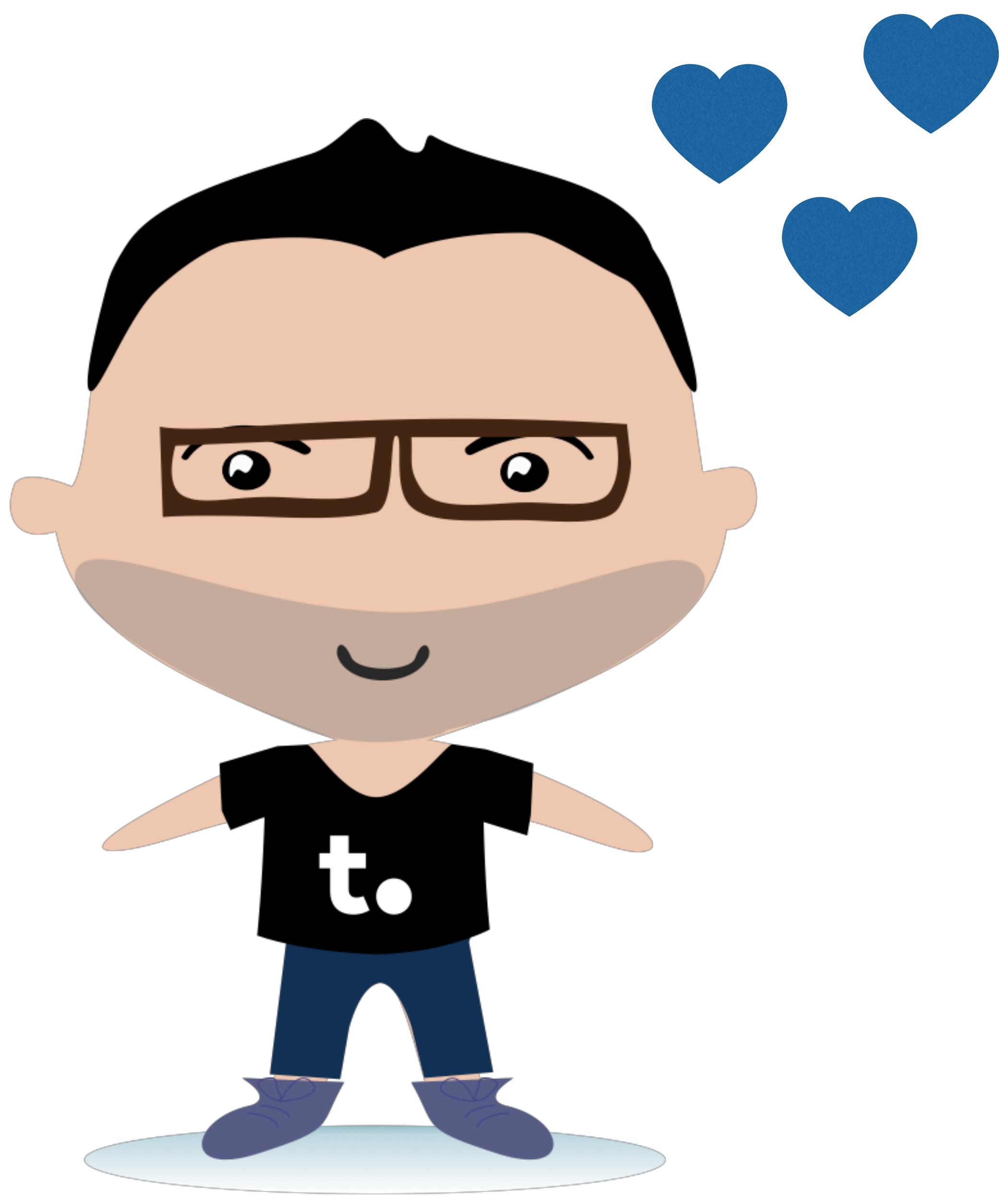
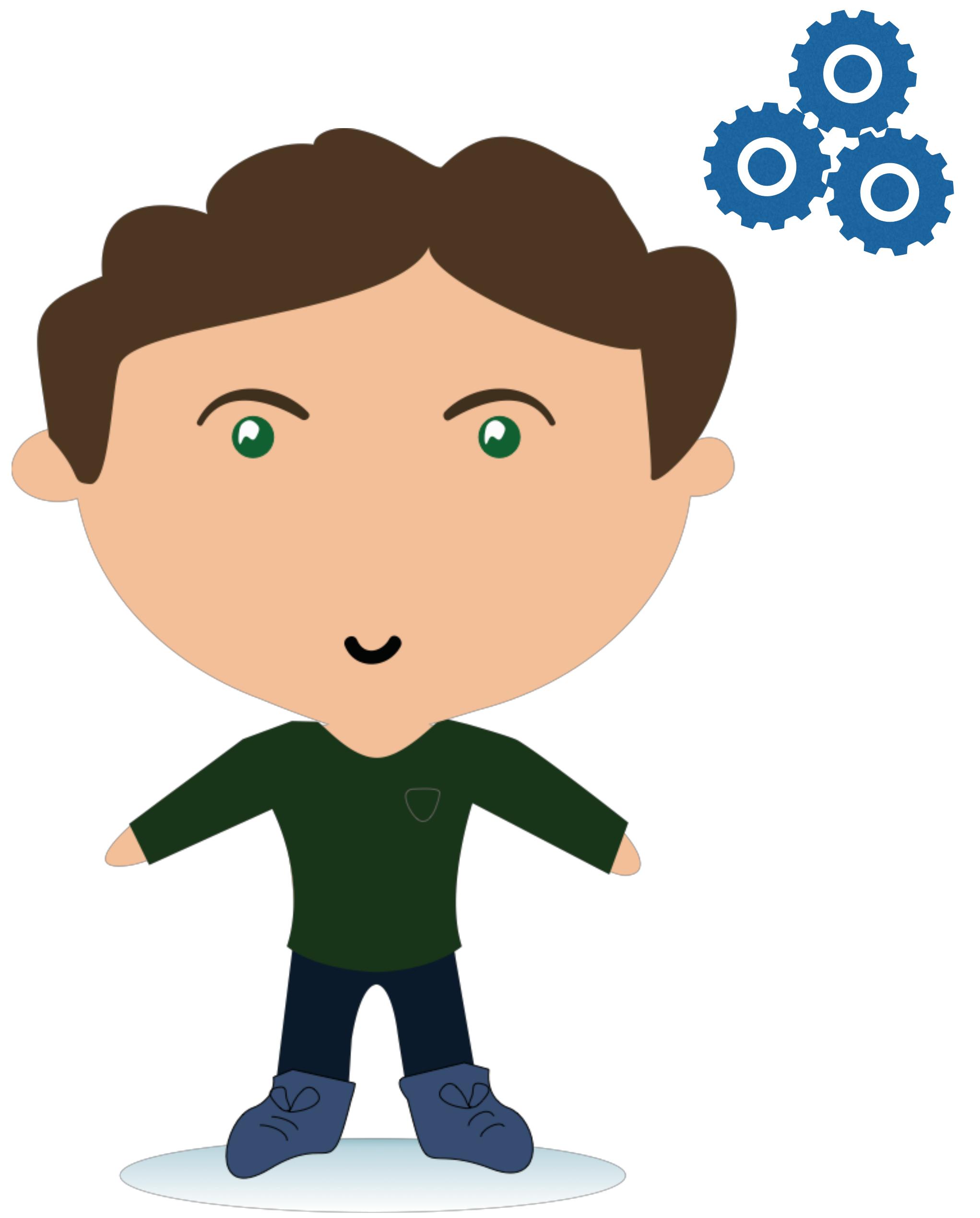
Improvements and future lines

- Count living cells
- Add some AI capabilities
- Create a web interface
- Find other applications
- Create new kind of filters



Achievements

- Serverless solving problems
- Generic reusable platform
- OpenWhisk is cool



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Thank you for your attention

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-  <https://theagilemonkeys.com>
-  <https://medium.com/the-theam-journey>
-  [@theagilemonkeys](https://twitter.com/@theagilemonkeys)

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