



AI-assisted food tracking to revolutionize nutritional research

www.aifornutrition.org



The Problem

The world's healthcare systems are being overwhelmed with non-communicable diseases strongly associated with unhealthy diets.

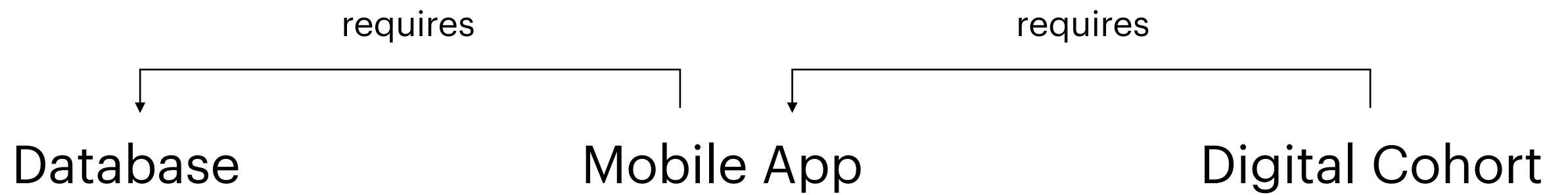
What constitutes unhealthy diets is a non-trivial question. First, much of the previous work on nutritional epidemiology is currently being questioned on methodological grounds¹. Second, there is increasing evidence for high interpersonal variability, leading to the concept of personalized nutrition².

¹ Ioannidis, J. P. (2018). The challenge of reforming nutritional epidemiologic research. *Jama*, 320(10), 969-970.

² Ordovas, J. M., Ferguson, L. R., Tai, E. S., & Mathers, J. C. (2018). Personalised nutrition and health. *bmj*, 361, bmj-k2173.



Strategy



FoodRepo



MyFoodRepo



Food & You





Food & You

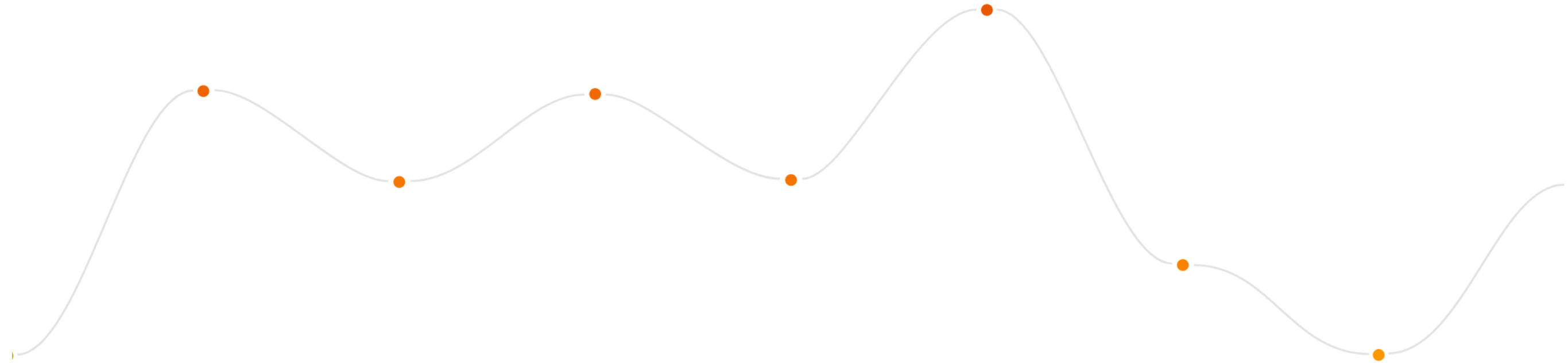
Food & You is a citizen science project on personalized nutrition to study individual blood sugar responses. The project is coordinated entirely digitally through a web platform and the smartphone app MyFoodRepo.



www.foodandyou.ch



Track your individual response to food and help advance science



Citizen Science



Nutrition



Blood Sugar



Microbiome



Lifestyle



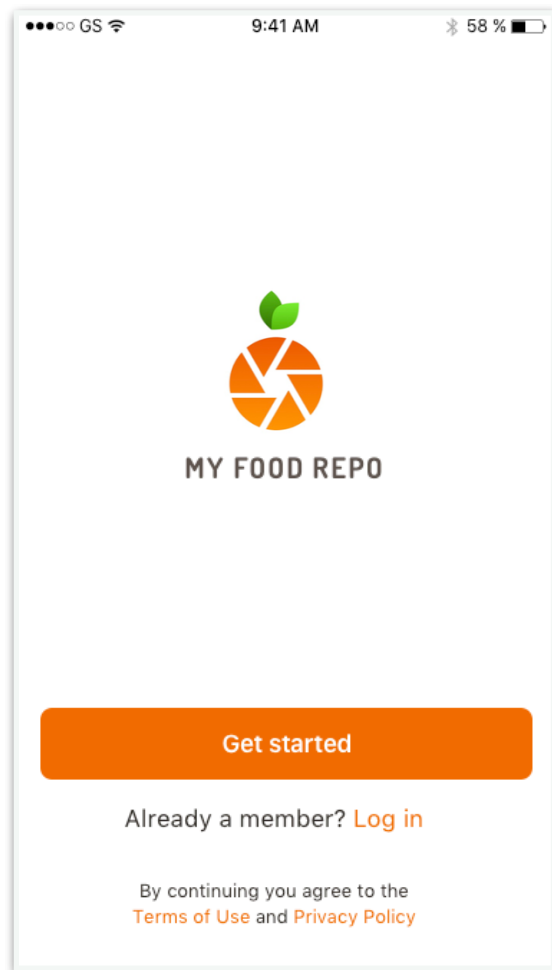
Dietary
intake



Blood
sugar



Microbiome



+



+

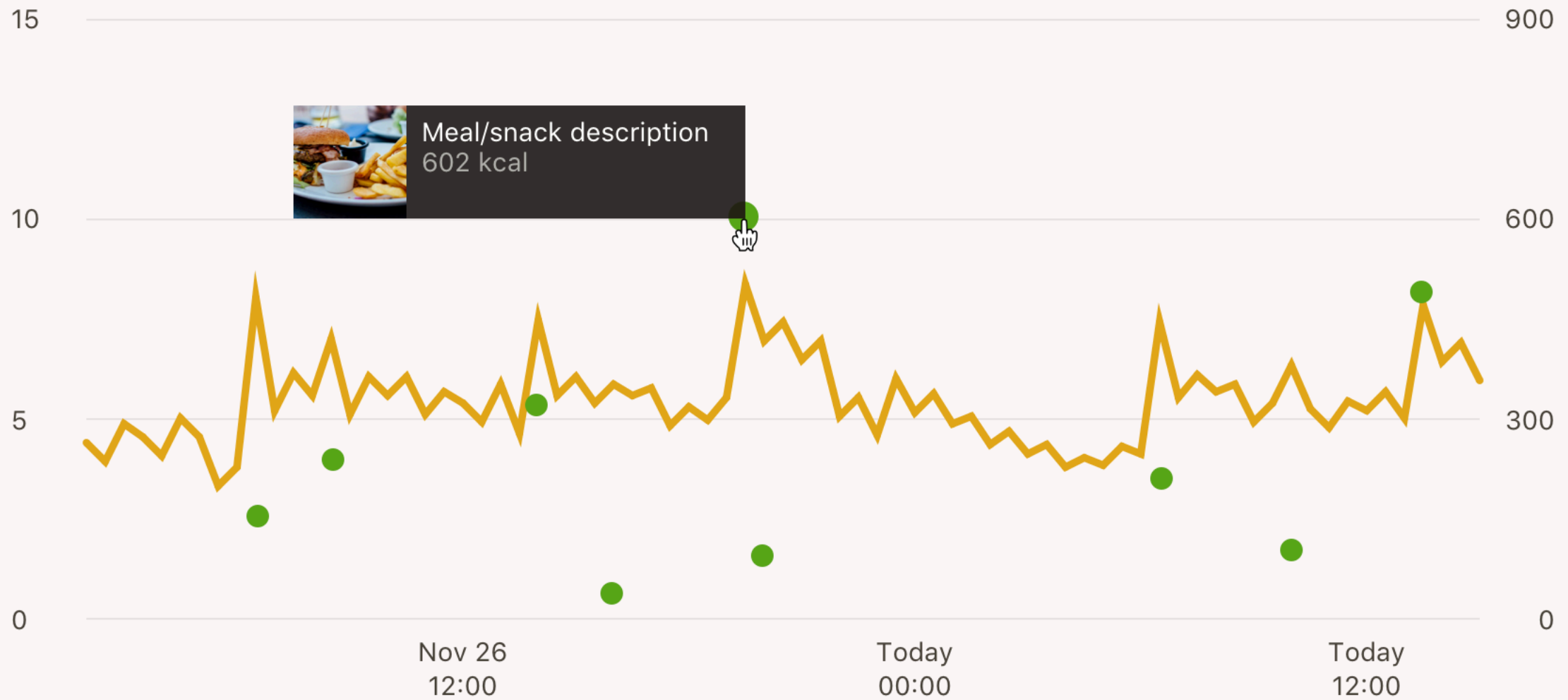


First “digital” personalized health cohort in CH to assess effect of microbiome on individual glucose response.

Glucose (mg/dL) & consumption

Energy (kcal) ▾

What did I eat? ▾

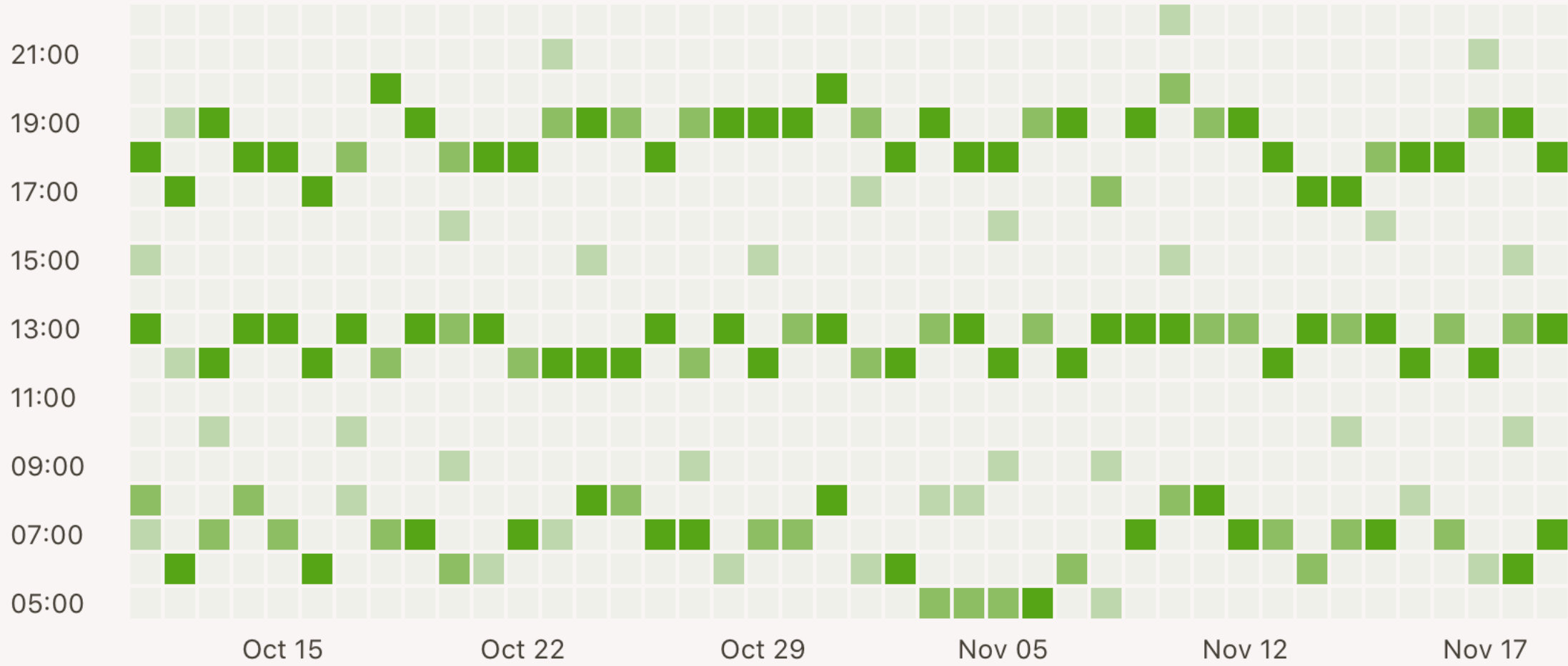


● Glucose (mg/dL) ● Energy (kcal)

⋮

Energy consumption (kcal)

When did I eat? ▾



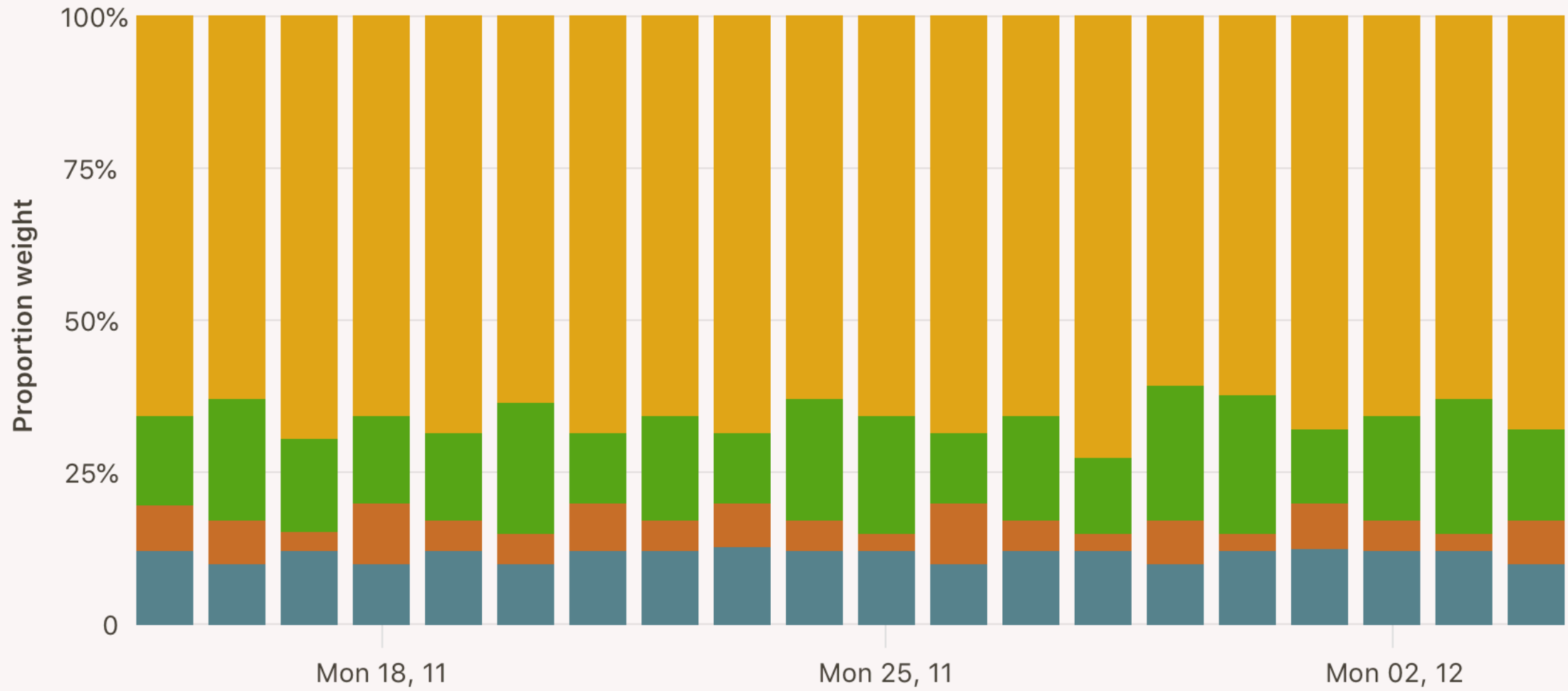
⋮

1-499 (kcal) 500-999 (kcal) 1,000-1,500 (kcal)

Consumption

Nutritional values ▼

What did I eat? ▼



Macronutrients: ■ Carbohydrates ■ Fat ■ Protein ■ Fiber



Traditional Cohorts



Food surveys

Blood glucose levels

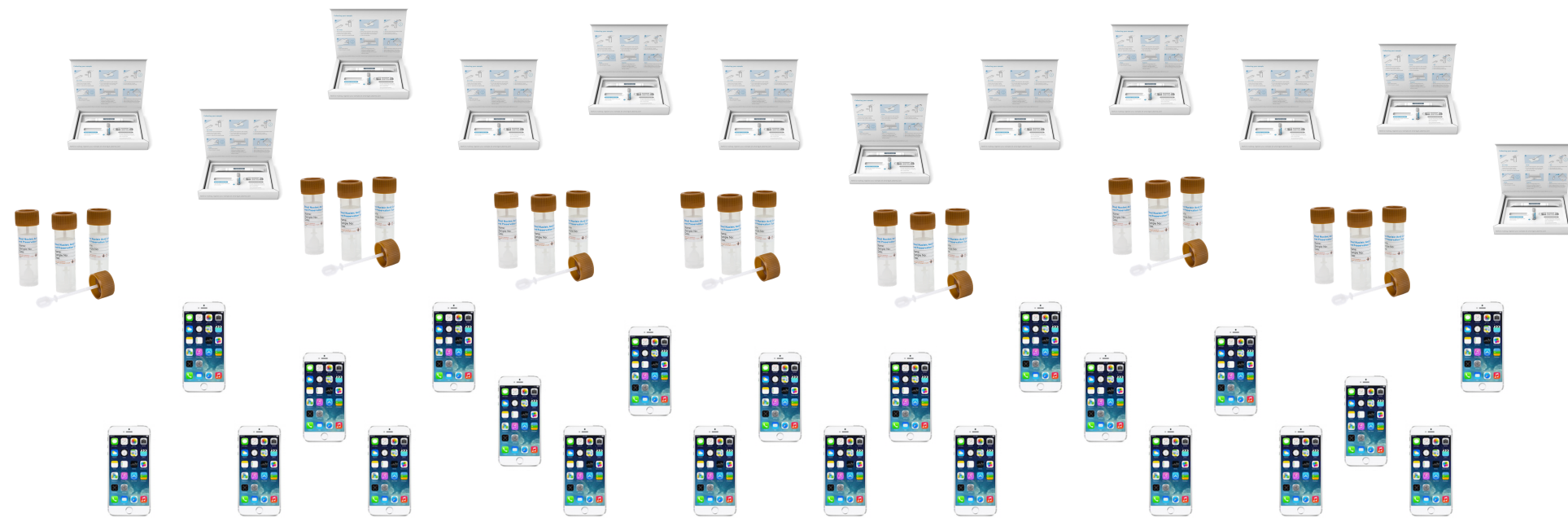
Demographics

Microbiome



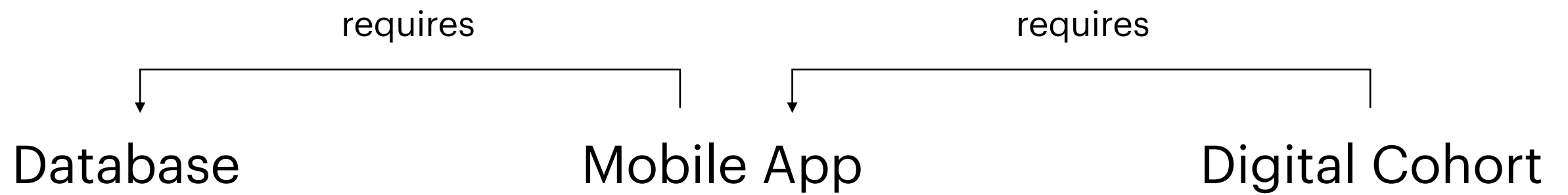


Digital Cohorts





Strategy



FoodRepo



MyFoodRepo



Food & You





FoodRepo

The Open Food Repo is an independent and community-driven open database for barcoded food products.



www.foodrepo.org



A community-driven open database for barcoded food products

Use Food Repo data to make better food choices or to build an app.
Contribute to it by improving the data as a community member.

[Contribute](#)[Learn more ▾](#)

41,510

Products added

1.54M

API requests

23,958

Open tasks

5,805

Contributions

Community

Latest contributions



bryan morris Added weight/volume to </ch/products/15982>
about 1 hour ago



tyzess Added weight/volume to </ch/products/15989>
about 1 hour ago



bryan morris Added weight/volume to </ch/products/15982>

Community

Top contributors



Tacite
★ 417 points



Marina Secat editor
★ 267 points



bryan morris admin



Developers

Use our data for your apps

We at Food Repo strongly believe in open data delivered using open source technologies and open web standards. The Food Repo API allows full access to all of the content available in our database, including powerful search tools and full-resolution images.

[API Documentation](#)

```
1  const request = require('request' 2.88.0 );
2
3  const options = {
4    url: 'https://www.foodrepo.org/api/v3/products/971',
5    headers: {'Authorization': 'Token
token=0b1f591017364a0bf22586b3fbfd65af'} // Demo API KEY
6  };
7
8  request.get(options, function(error, response, body) {
9    const info = JSON.parse(body);
10   console.log(info.data);
11 });
12 // Click '▶ run' to try this code live
```

Powered by **RunKit**

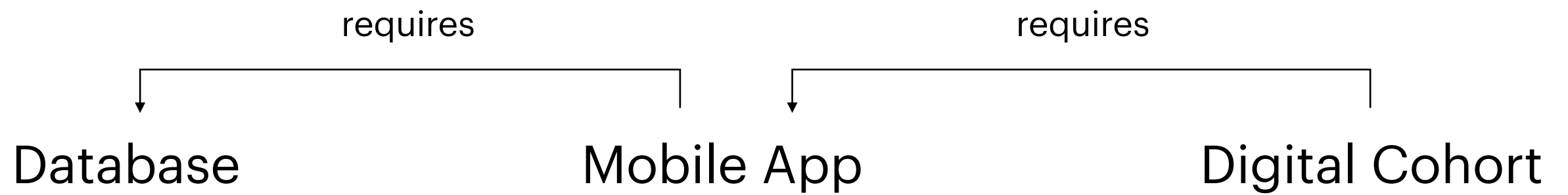
Node 10 ↕

help

▶ run



Strategy



FoodRepo



MyFoodRepo



Food & You





MyFoodRepo

MyFoodRepo is a smartphone app that tracks food consumption. The app uses artificial intelligence to analyze the photos of meals as well as barcode information from the Open Food Repo database.





MyFoodRepo

The **MyFoodRepo** platform helps individuals track their food consumption with a mobile app (“take a picture, done”).



The platform is used today by clinical cohorts in Switzerland, and thus by patients on a daily basis.

5:52

4G











Timeline

Track

All

Pending Action

SATURDAY OCTOBER 19, 2019

-  22:09 coop Qualité & Prix BRANCHE CLASSIC CHOCOLAT AU LAIT >
-  20:08 Wine, red >
-  19:06 Salad dressing n.s., Salad, leaf / salad, green n.s. >
-  18:57 Water n.s. >
-  18:57 Tuna, Tomato sauce, Pasta, penne >
-  13:50 Coffee, with caffeine >
-  13:20 French salad dressing, Salad, leaf / salad, green n.s. >
-  13:20 Fermenting wine, with alcohol (CH) >
-  13:20 Grapes, Venison, cutlet, Pasta, linguini, parpadelle, Tagliatelle,... >
-  10:00 Coffee, with caffeine >



Main



Statistics



Cohorts



Settings



More



5:52

4G

Cohorts

Subscribe

YOUR COHORTS



Food & You

Internal



Main



Statistics



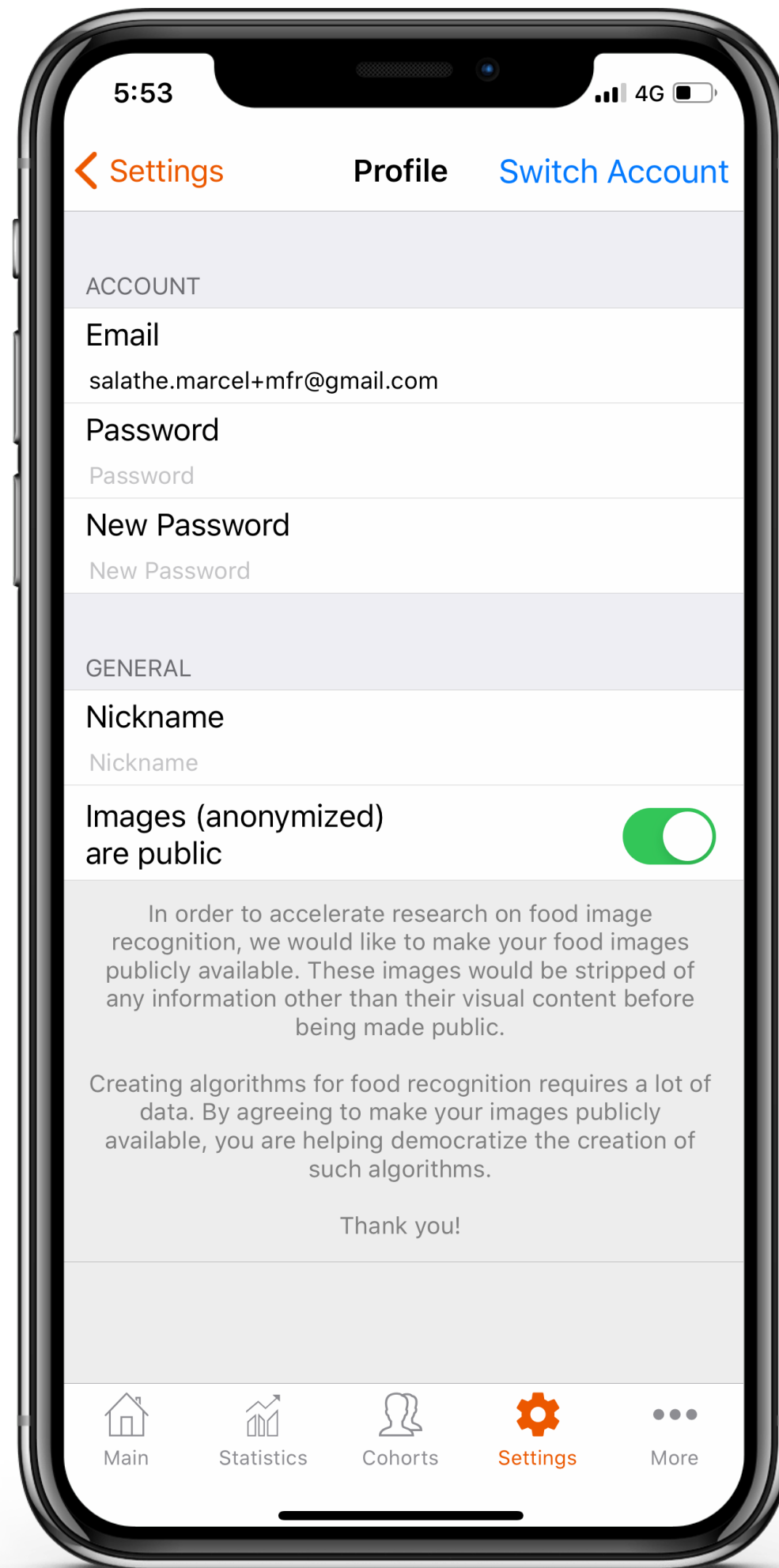
Cohorts



Settings



More



5:53

4G

< Settings Profile Switch Account

ACCOUNT

Email

salathe.marcel+mfr@gmail.com

Password

Password

New Password

New Password

GENERAL

Nickname

Nickname

Images (anonymized) are public

In order to accelerate research on food image recognition, we would like to make your food images publicly available. These images would be stripped of any information other than their visual content before being made public.

Creating algorithms for food recognition requires a lot of data. By agreeing to make your images publicly available, you are helping democratize the creation of such algorithms.

Thank you!



Main



Statistics



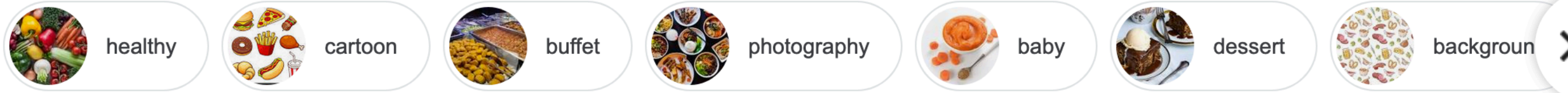
Cohorts



Settings



More



Food - Wikipedia en.wikipedia.org



The New Canada Food Guide 201... chatelaine.com



Best Black Friday Food Deals 2018 ... thrillist.com



Teen goes blind after eating junk food ... nypost.com



junk food could help save the environment phys.org



The Worst Foods to Eat and The Best ... foodrevolution.org



Junk food is deadlier than what it was ... timesofindia.indiatimes.com



- diet
- healthy
- japanese
- bangladeshi
- dinner
- chinese
- nutrition



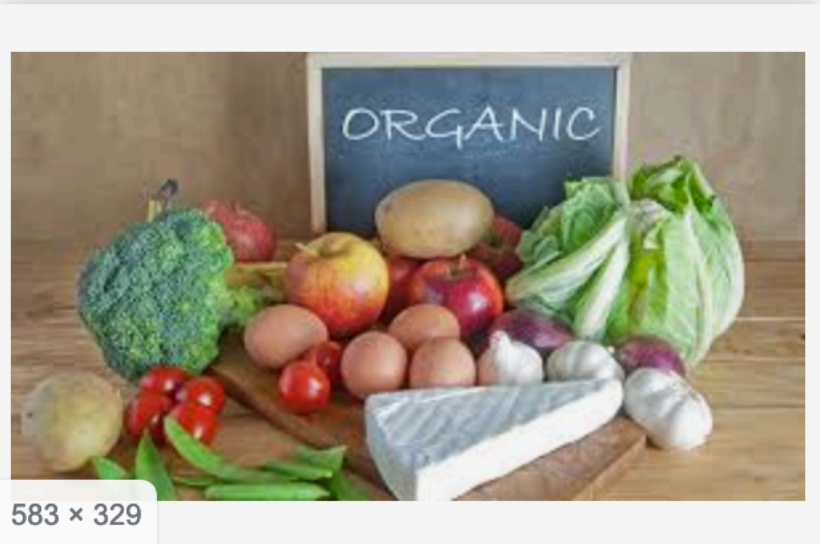
Organic Vs. Regular Food—What's... psychologytoday.com



Superfoods vs a balanced diet: which... valleyleisurelifestyle.wordpress.com



Your guide to getting enough fib... healthyfood.com



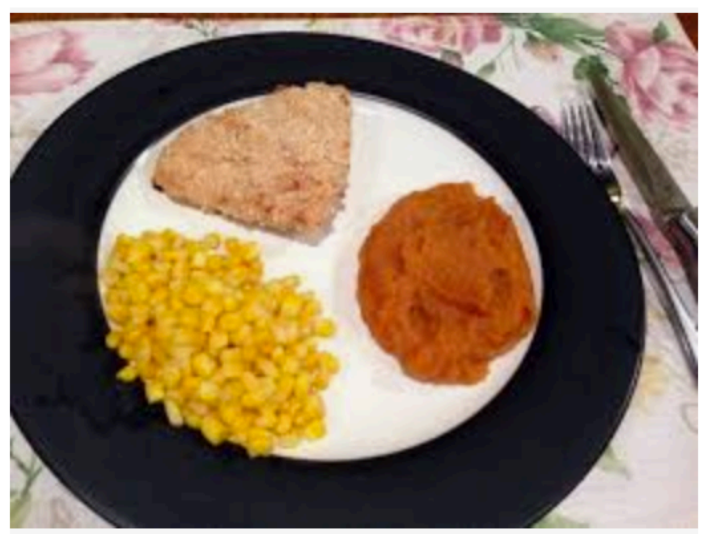
Organic Foods vs Regular Conventional ... thediabetescouncil.com



regular food for lunch | Fernando Ysais ... flickr.com



School Caterers schoolcaterers.com



Forgetting What Regular Food Looks Like ... sweettoothsweetlife.com



Gluten-free food isn't healthier fo... independent.co.uk



Review Dish #74329

Eaten *(in User's time zone)*

Saturday, October 26, 2019 2:06 PM (UTC+02:00)

User

(redacted)

Status

Pending Annotation

Segmentation (0.3)

Dish Foods

1. Red cabbage



+ Add a dish food

Dish Food 01



Red cabbage

Present unit

Grams

Deciliters

Present amount

120

Grams

Eaten unit

g

dl

%

Eaten amount

100

%

Dish Food 01 Segment 01

ML Confidence: 1.48%

Sync with Dish Food "Present" Amount?

Visible unit

Visible amount

Review Dish #73172

Eaten *(in User's time zone)*

Tuesday, October 22, 2019 9:05 PM (UTC+02:00)

User

(redacted)

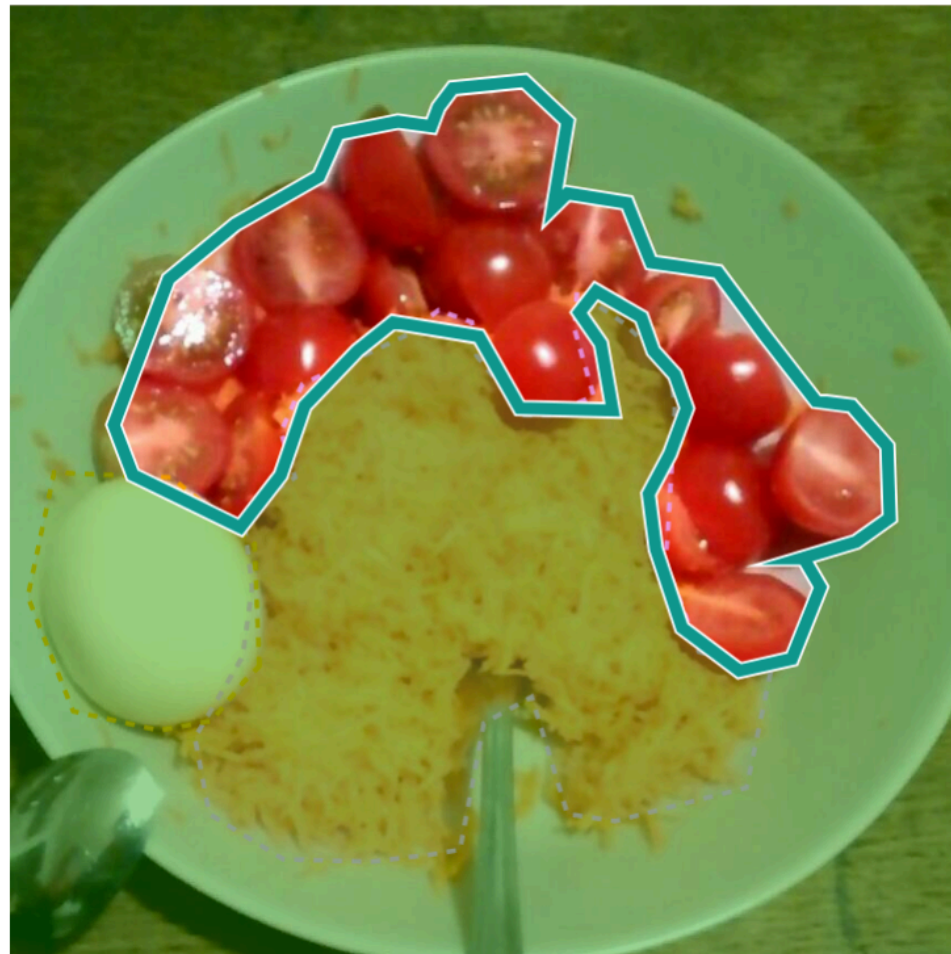
Status

OK

Segmentation (0.3)

Dish Foods

- 1. Tomato
- 2. Carrot
- 3. Egg
- 4. Oil, olive
- 5. Juice, lemon



+ Add a dish food

Dish Food 01 🗑️

Present unit

Present amount

Eaten unit

Eaten amount

Dish Food 01 Segment 01 ✎ 🗑️

ML Confidence: 0.93%

Sync with Dish Food "Present" Amount?

Visible unit

Visible amount



Food Recognition Benchmark

Goal: to use the open, annotated food data to crowdsource AI development.

<https://www.aicrowd.com/challenges/food-recognition-challenge>

🕒 Round 1: Completed

🕒 Round 2: 93 days left

Food Recognition Challenge

A benchmark for image-based food recognition

- ✈️ 1 Travel Grants
- 📄 1 Authorship/Co-Authorship
- Misc Prizes : Various Prizes



By Seerave Foundation

👁️ 7042

👤 228

🚀 356

❤️ 19

Follow

Overview | Leaderboard | Discussion | Resources | Submissions

Participate

Overview

Datasets

An open benchmark

Evaluation criteria

Challenge rounds

Prizes

The Starter Kit for this challenge is available at : <https://github.com/Aicrowd/food-recognition-challenge-starter-kit>

Overview

Recognizing food from images is an extremely useful tool for a variety of use cases. In particular, it would allow people to track their food intake by simply taking a picture of what they consume. Food tracking can be of

- 1 Authorship/Co-Authorship
- Misc Prizes : Various Prizes

A benchmark for image-based food recognition



By Seerave Foundation

7049

229

356

19








Follow

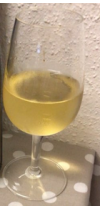
Overview **Leaderboard** Discussion Resources Submissions

Participate

Round 1

Round 2

Δ	#	Participants	Media	Average Precision	Average Recall	Entries	Last Submission	
▲	01	  rssfete	-	0.573	0.831	127	Sun, 29 Dec 2019 21:44	View
▼	02	 kay	-	0.565	0.759	57	Mon, 30 Dec 2019 14:56	View
▲	03	 joao_schapke	-	0.537	0.840	9	Sat, 28 Dec 2019 19:59	View
▼	04	 nikhil_rayaprolu	-	0.526	0.729	31	Sat, 21 Dec 2019 15:43	View
●	05	 HarryWalters	-	0.526	0.729	20	Mon, 30 Dec 2019 12:57	View
●	06	 kunal_arora	-	0.182	0.211	9	Sat, 28 Dec 2019 21:05	View



Non-Annotated data



Non-Annotated data



ML algorithm



Non-Annotated data



ML algorithm



Human verification / annotation



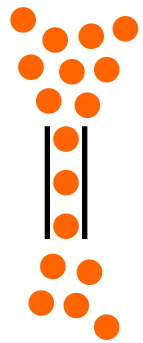
Non-Annotated data



ML algorithm



Human verification / annotation





Non-Annotated data



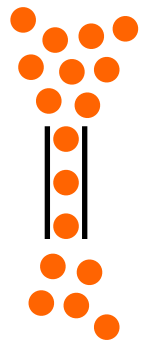
ML algorithm



Human verification / annotation



Annotated data





Non-Annotated data



ML algorithm



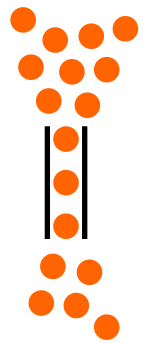
Human verification / annotation



Annotated data



Public Benchmark





Non-Annotated data



ML algorithm



Human verification / annotation



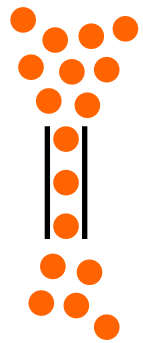
Annotated data



Public Benchmark



Top solution(s) deployed as API





Non-Annotated data



ML algorithm



Human verification / annotation



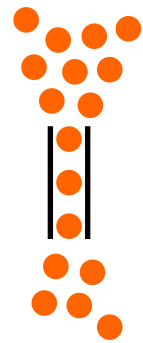
Annotated data

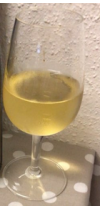


Public Benchmark



Top solution(s) deployed as API





Non-Annotated data



ML algorithm



Human verification / annotation



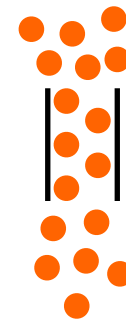
Annotated data



Public Benchmark



Top solution(s) deployed as API





Up Next: Going International

With the support of a group of foundations, we plan to establish MyFoodRepo as an open, transparent standard for food tracking.



www.aifornutrition.org