

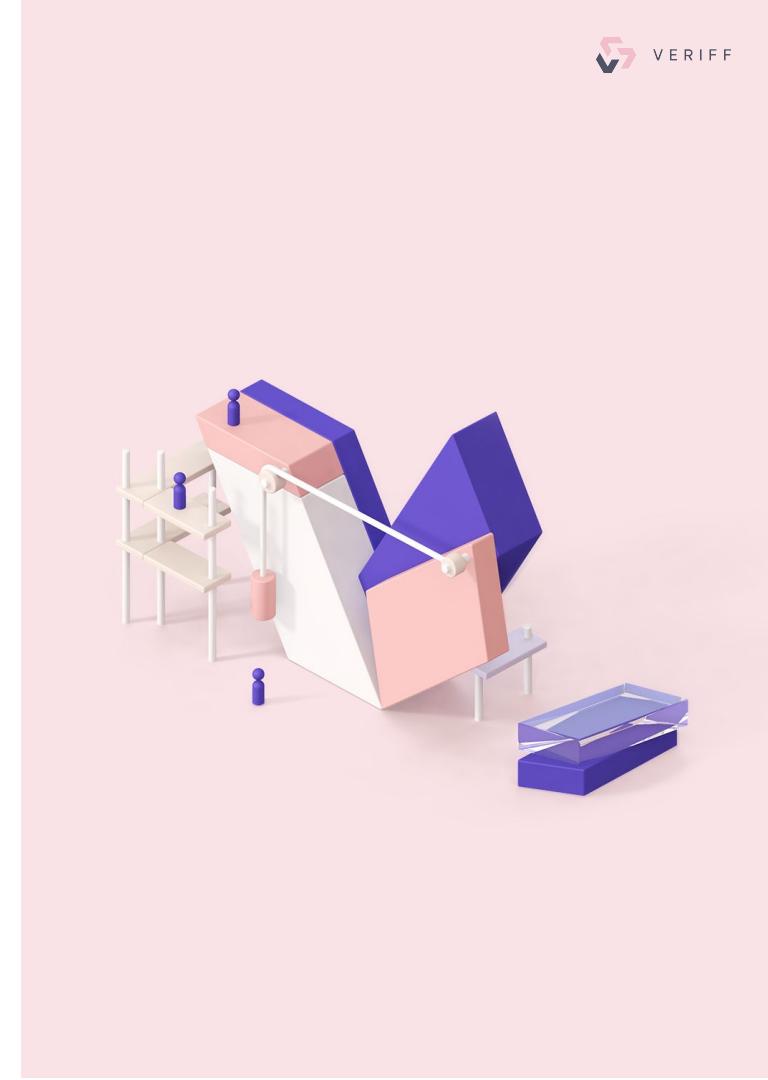


Developing automation-heavy products

Taivo Pungas, Automation Lead at Veriff

The problem

- ↳ Can you trust people online?
- ↳ Good users pay premium if no trust
- ↳ Building verification in-house is costly



Legitimate ID



Forged ID





Veriff yourself
without leaving
your seat.

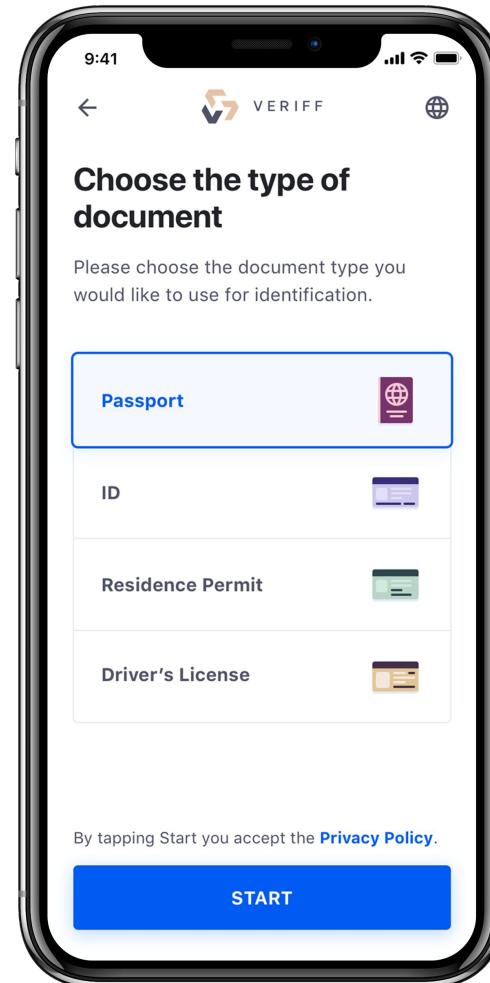


Our Product

Follow instructions given.

Show face and document.

Get verified!



Our Product

Follow instructions given.

Show face and document.

[Get verified!](#)

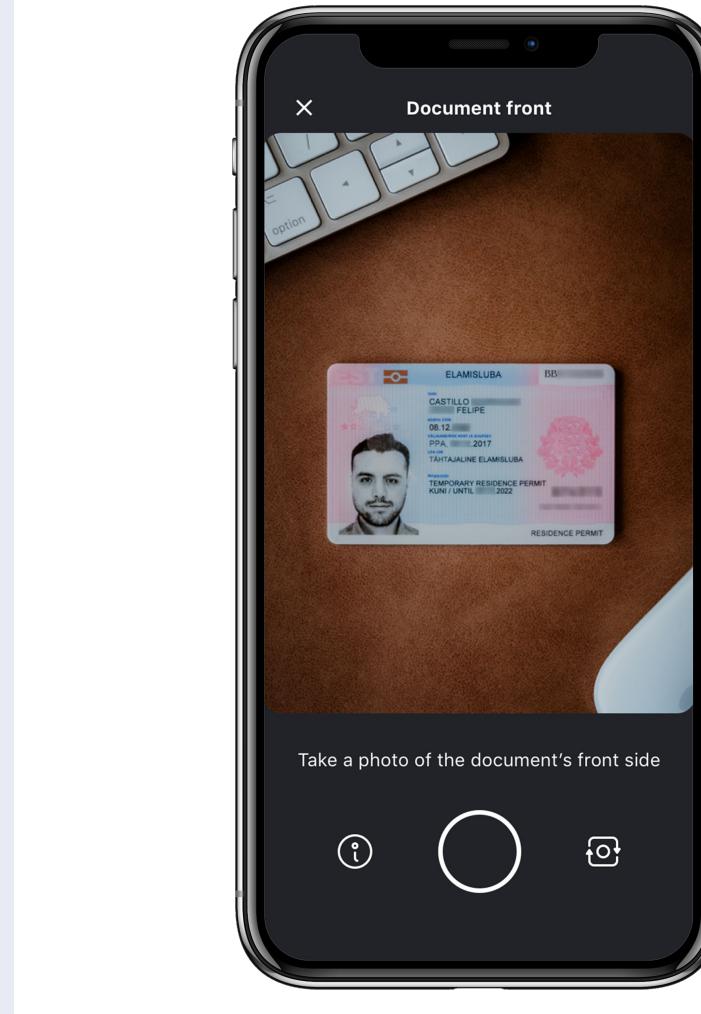


Our Product

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Get verified!

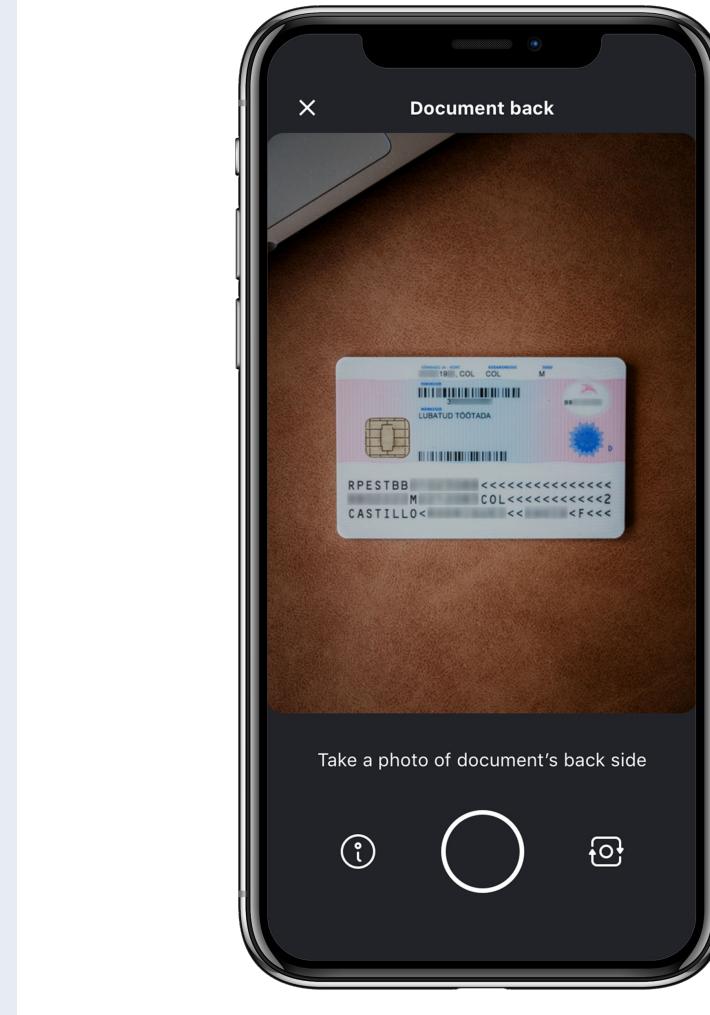


Our Product

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Show face and document.

Get verified!

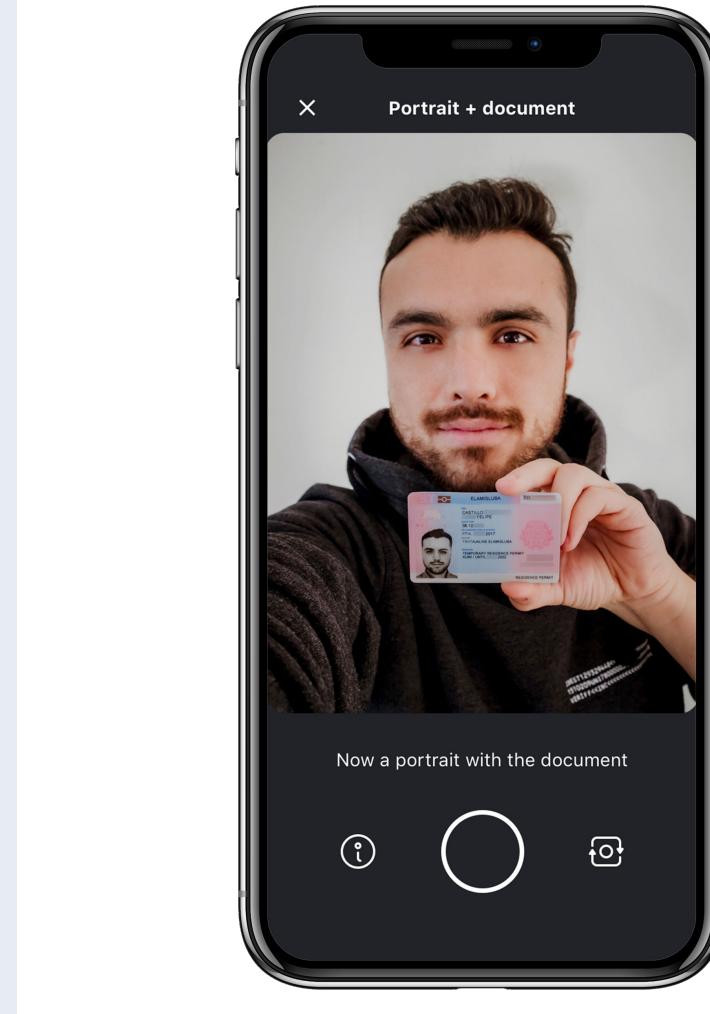


Our Product

Follow instructions given.

Show face and document.

Get verified!

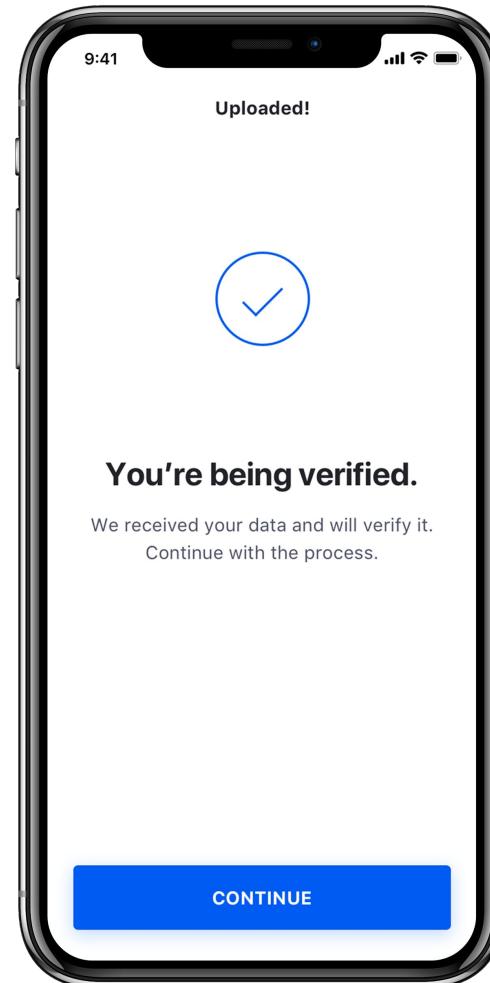


Our Product

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This is Veriff

- ▼ Established in October 2015
- ▼ Y Combinator W18
- ▼ Funding in total \$8.3M
- ▼ 130 people and growing



This is Veriff

- ✓ Established in October 2015
- ✓ Y Combinator W18
- ✓ Funding in total \$8.3M
- ✓ 130 people and growing



Kersti Kaljulaid @KerstiKaljulaid · Apr 22

Punk'd @aplusk in #Sedona. (Do you ever get tired of that joke?)



ashton kutcher



3



32



222



ashton kutcher

@aplusk

Follow

Replies to @KerstiKaljulaid

Was great to meet you. Am excited to work together on anti Trafficking measures and happy hear you know the next Estonian tech giant @Veriff

9:53 PM - 23 Apr 2018

10 Retweets 244 Likes



Automation at Veriff

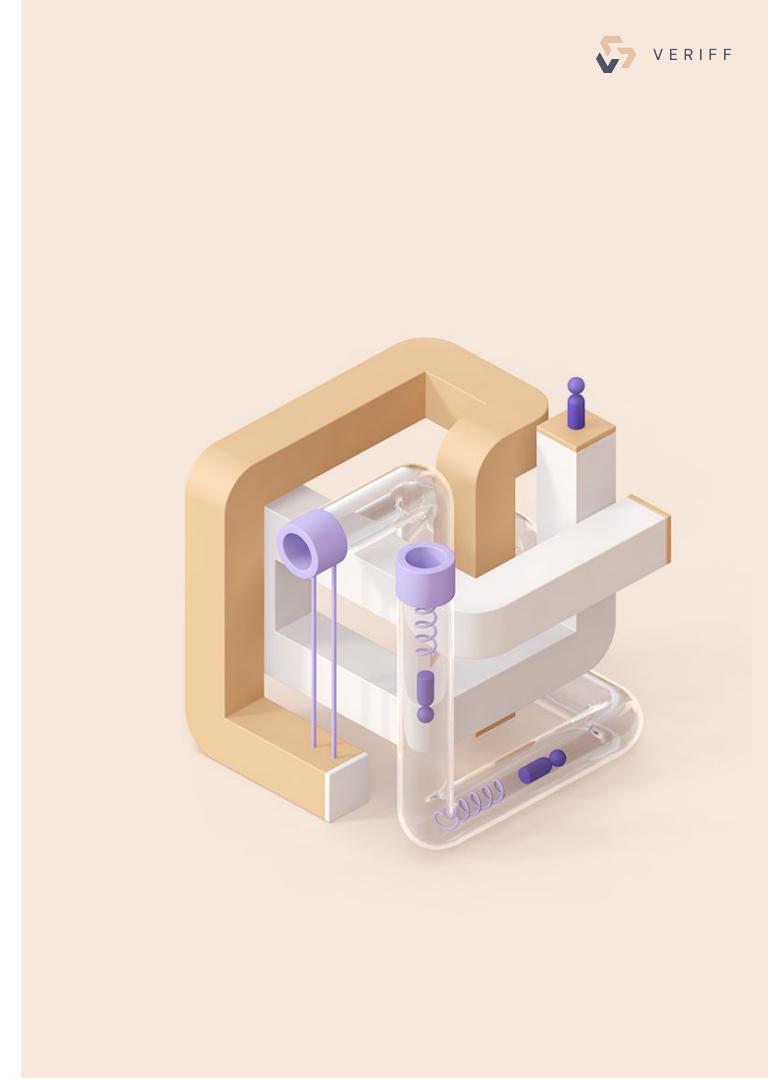
What I mean by automation

Building software to perform typically-human tasks...

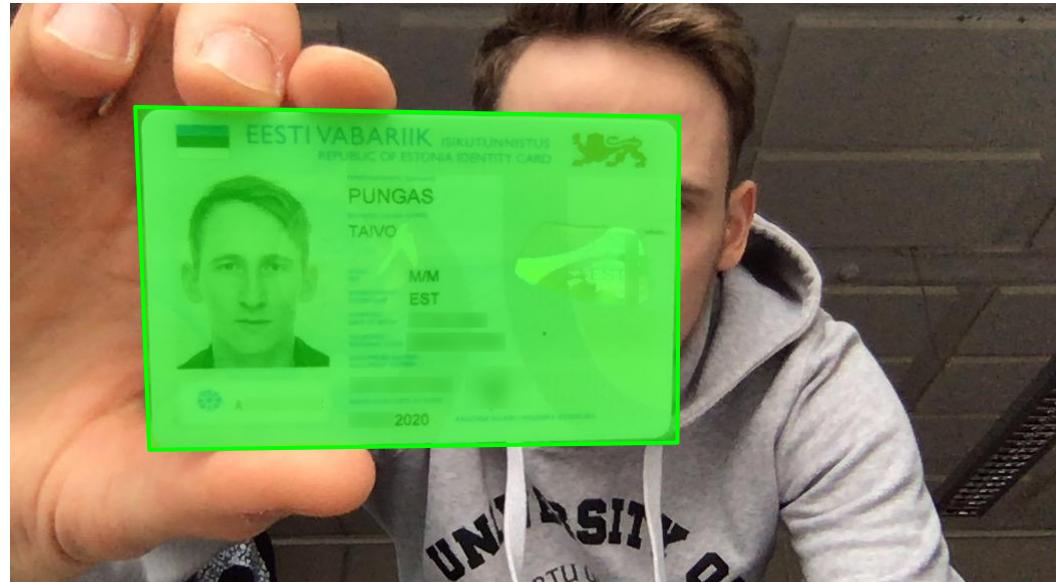
...whose solutions usually cannot be perfectly described in code.

Automation team at Veriff

- ✓ Macro goal: automatic decisions
- ✓ Critical for scaling
- ✓ Part of Engineering; 90% internal-facing
- ✓ 0 people to 7 in four months
Data science, software engineering, analysis,
annotation



Document localization



Document classification



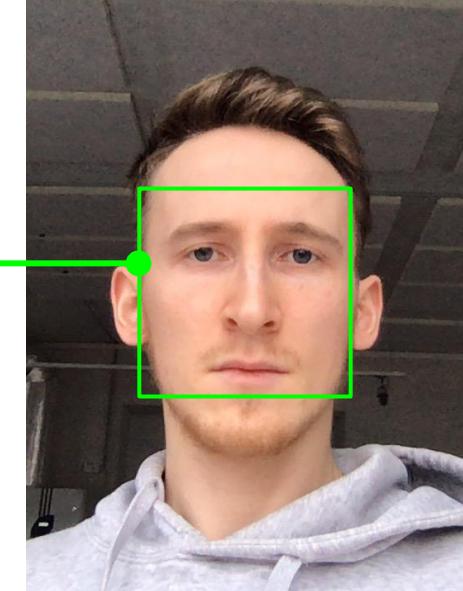
Estonian ID-card 2011-2018

OCR and post-processing

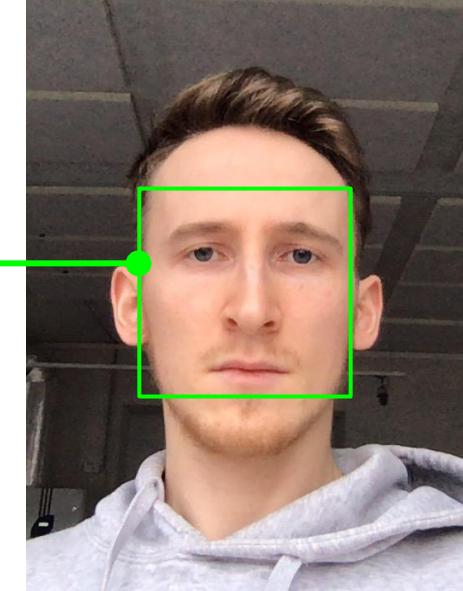


```
{  
    last_name: Pungas  
    first_name: Taivo  
    gender: M  
    citizenship: EE  
    ...  
}
```

Face detection and comparison



Face detection and comparison



Fraud detection



{

ip_country: Latvia

...

}

doc_country: Estonia



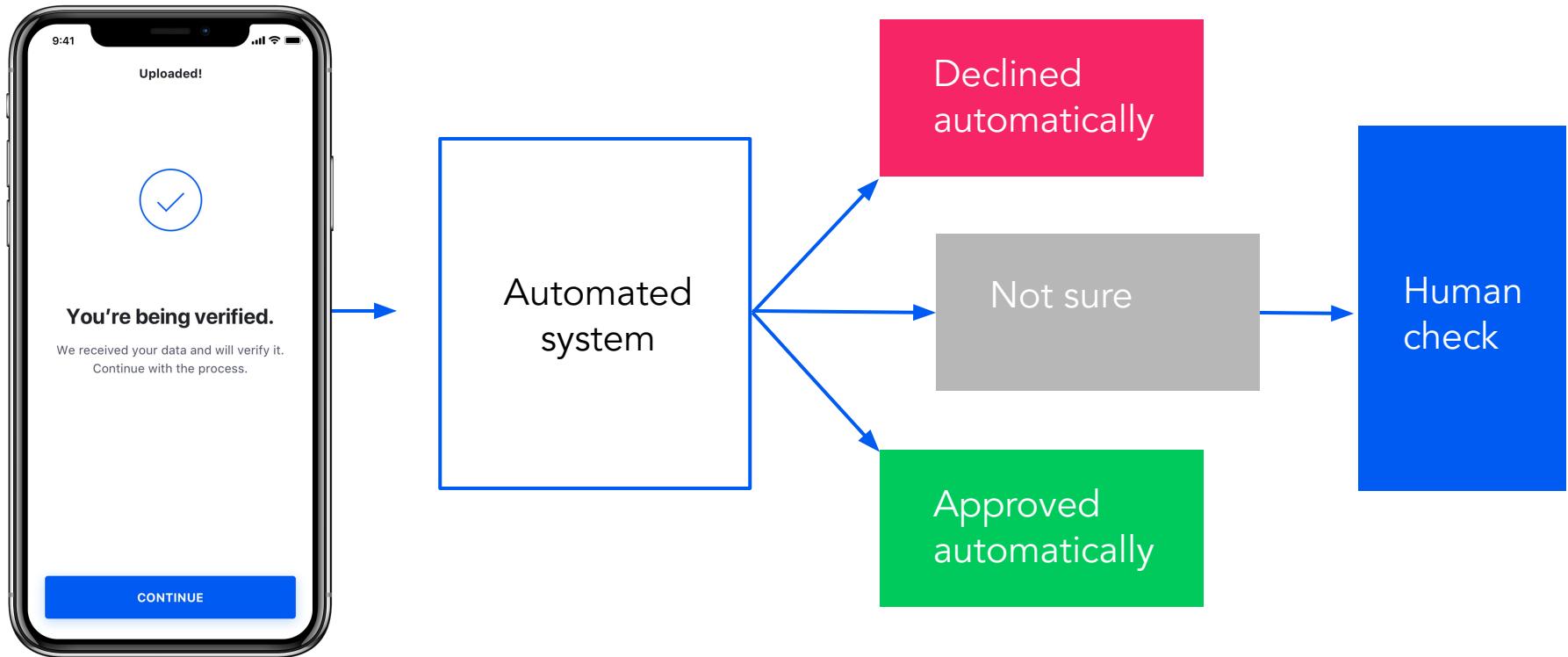
Decline

Three tips for building automation quickly

Three tips for building automation quickly

1. Define unit of automation

Gradual automation



Macro: KPI based on units of automation

- ✓ declined automatically
- ✗ human check
- ✓ declined automatically
- ✓ approved automatically
- ✗ human check
- ✗ human check
- ✓ approved automatically
- ✓ declined automatically

Automation rate

$$(3 + 2) / 8 = 62.5\%$$

unit of automation = 1 verification

Micro: how to improve?

- ✓ declined automatically

- ✗ human check

- ✓ declined automatically

- ✓ approved automatically

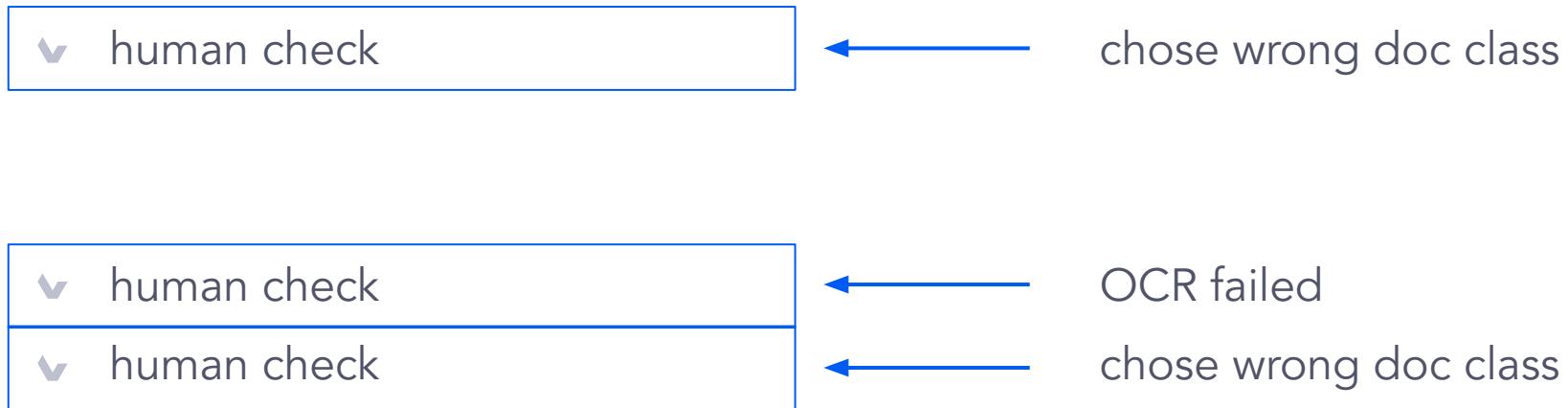
- ✗ human check

- ✗ human check

- ✓ approved automatically

- ✓ declined automatically

Identify root cause



Identify root cause

✓ human check

✗ human check

✓ human check



OCR failed

perfect doc classification => 3x reduced human work

Three tips for building automation quickly

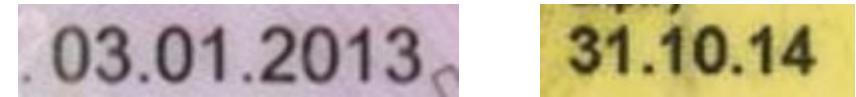
2. Stay algorithm-agnostic

Example 1: parsing dates

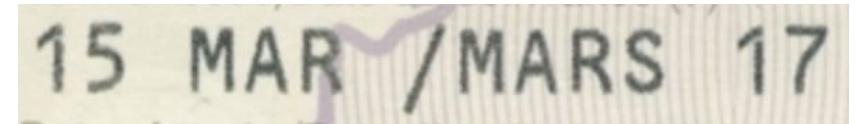
LSTM vs

(\d\d) . (\d\d) . (\d\d) ? (\d\d)

Depends on the
distribution!



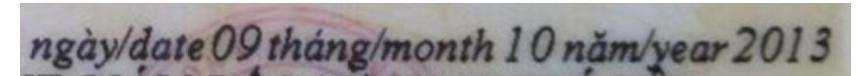
03.01.2013 31.10.14



15 MAR / MARS 17



DOB 08/31/1977

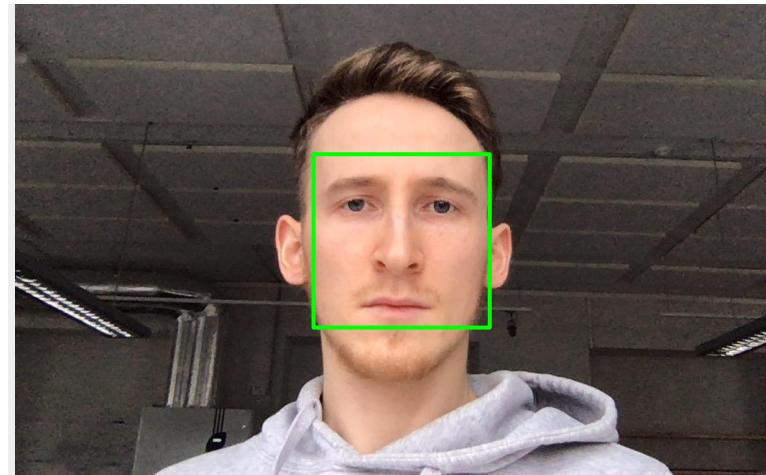


ngày/date 09 tháng/month 10 năm/year 2013

Example 2: can a worse model work better?



NOT FOUND



FOUND

Example 3: determining image quality in SQL



```
SELECT Json_array_length(ocr_boxes) < 9  
AS is_low_quality_image
```

Example 4: two lines for document localisation



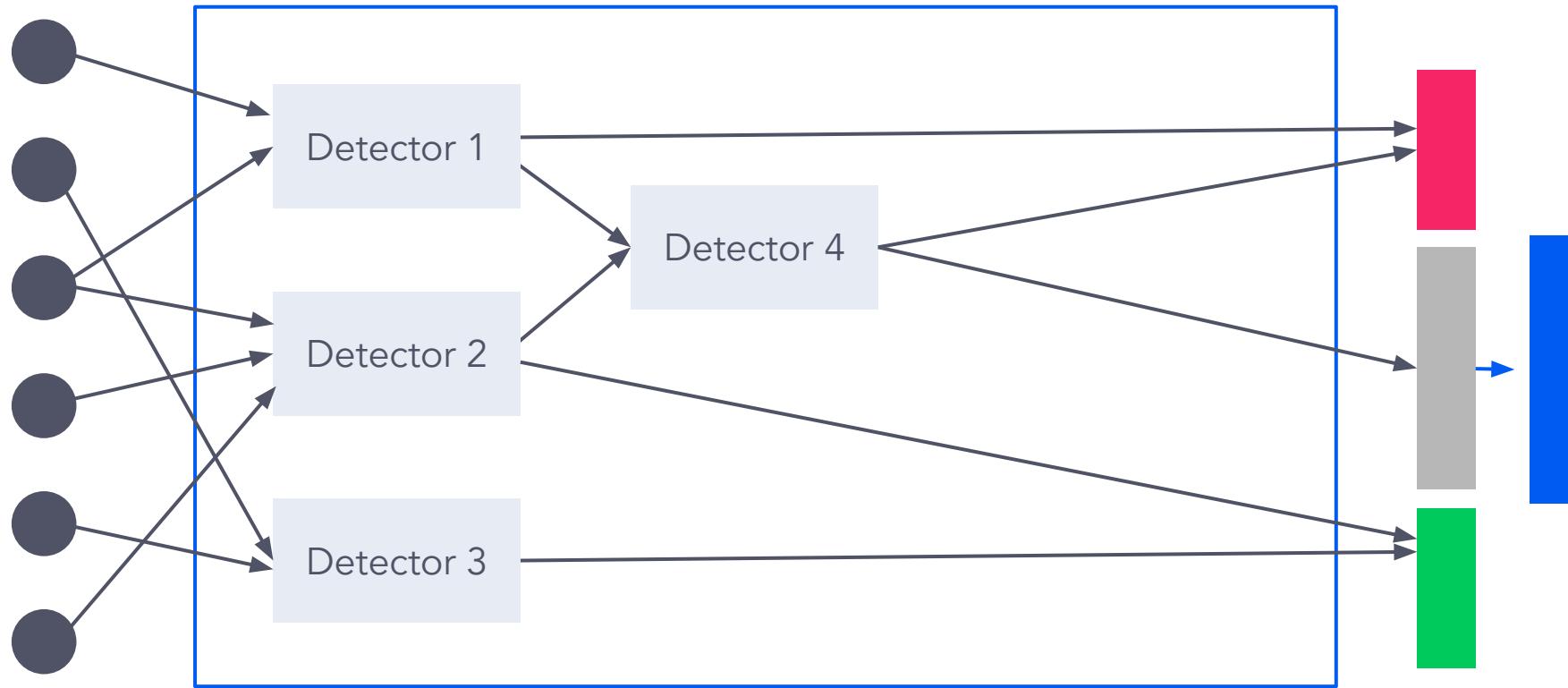
```
from skimage.feature import match_template  
result = match_template(image, template_image)
```

Three tips for building automation quickly

3. Build a final decisionmaker

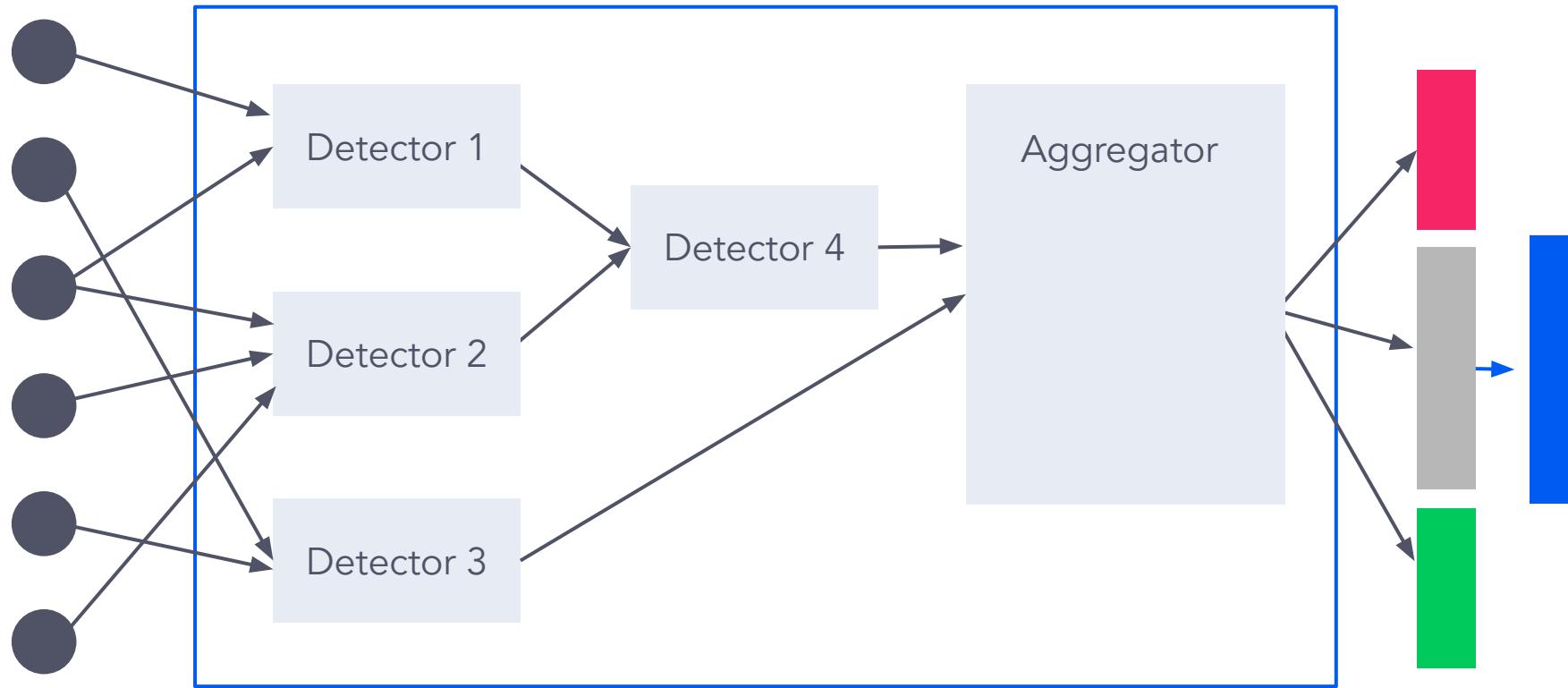
Inputs

Automated system



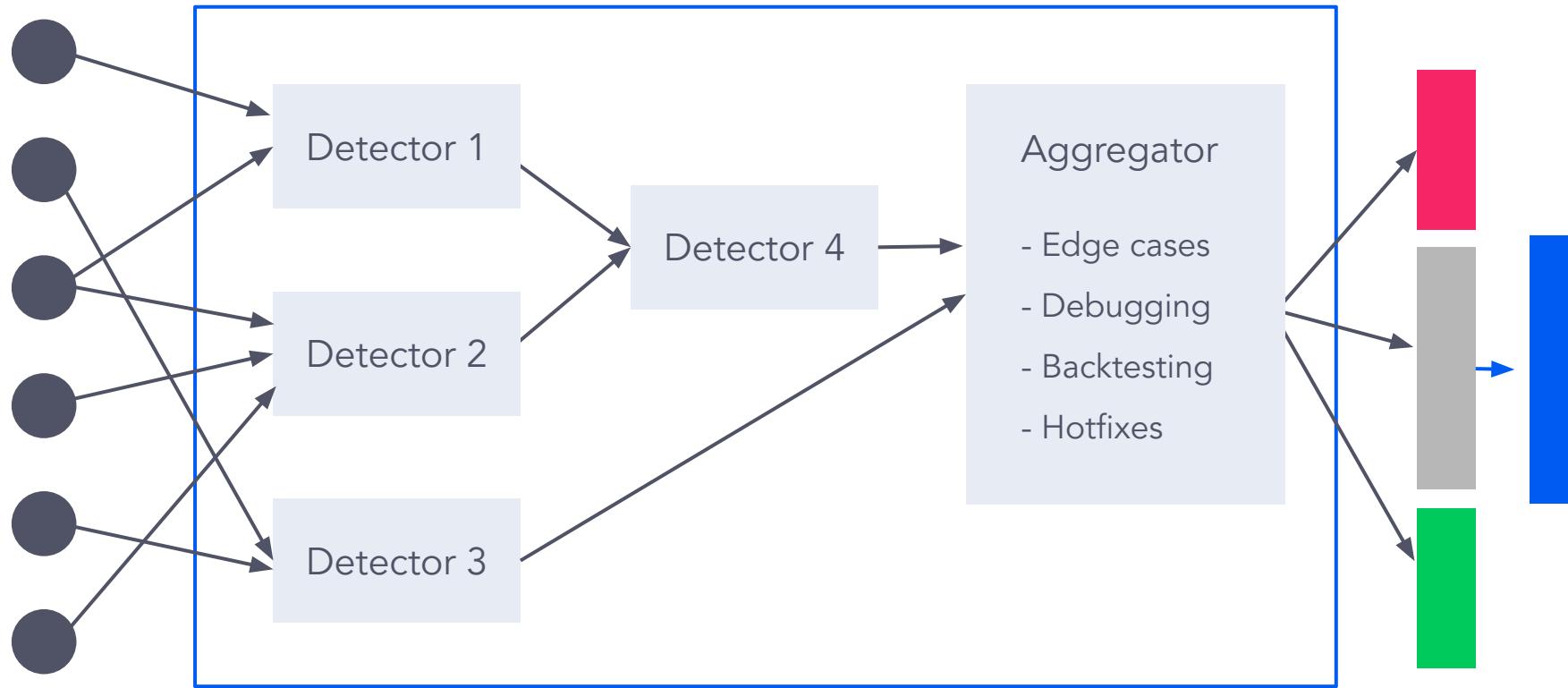
Inputs

Automated system



Inputs

Automated system



Three tips for building automation quickly

1. Define unit of automation

2. Stay algorithm-agnostic

3. Build a final decisionmaker



Build for billions

veriff.com/careers

taivo.pungas@veriff.com

