

tinyML[®] EMEA

Enabling Ultra-low Power Machine Learning at the Edge

June 26 - 28, 2023



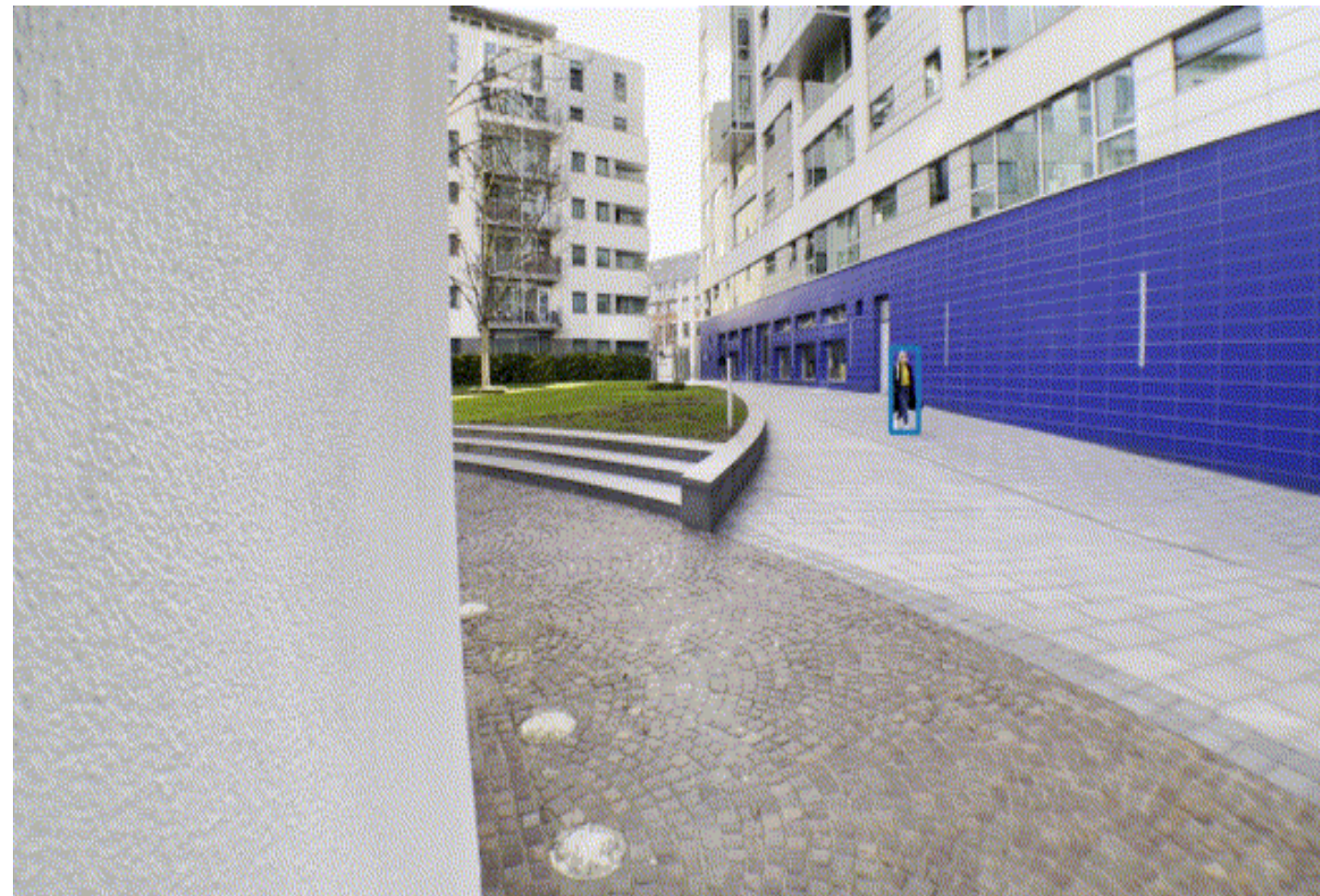
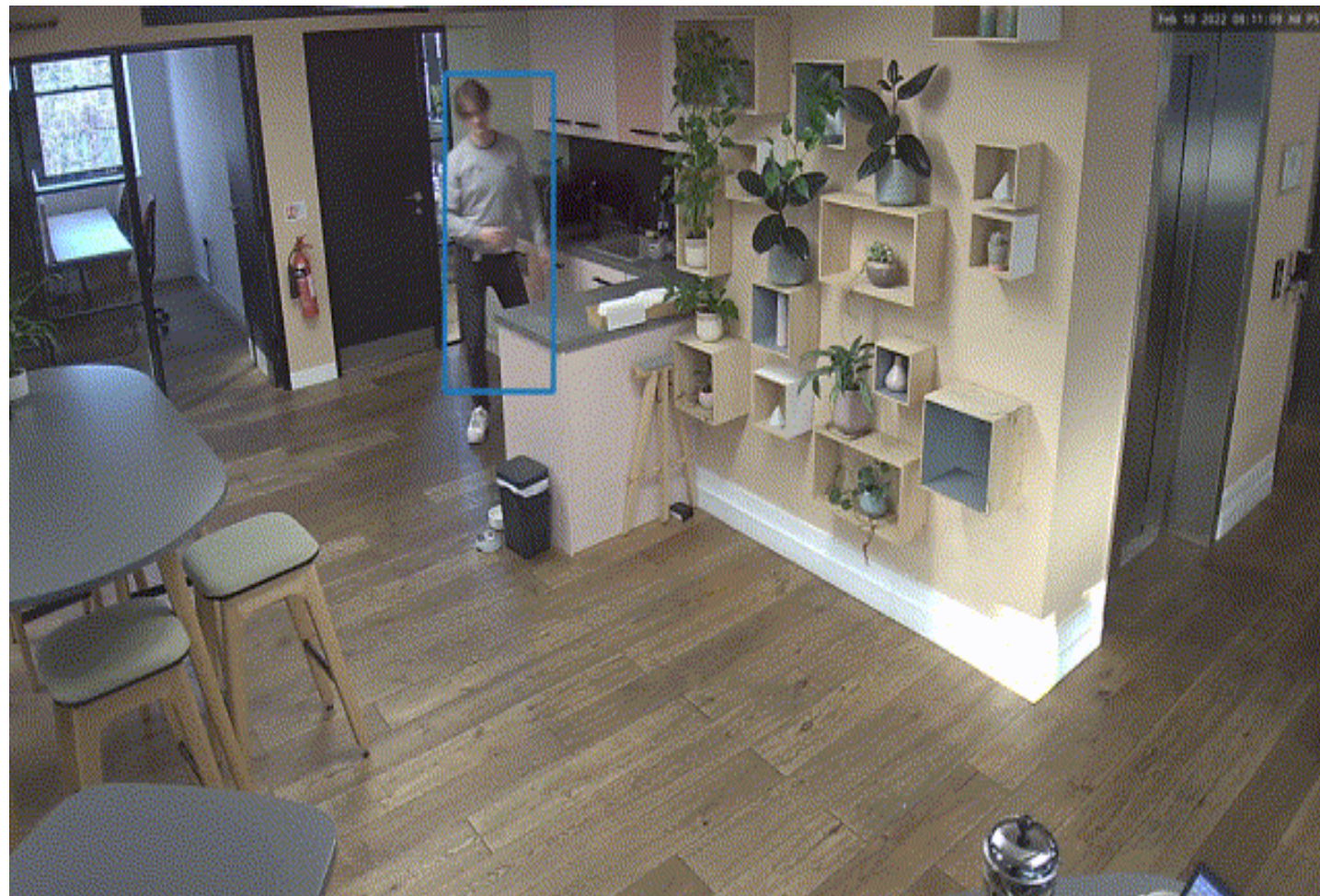
www.tinyML.org

Tiny Familiar Face Identification

A Privacy-Preserving Solution for
Personalizing Your Devices

Plumerai

- Plumerai People Detection
- Plumerai Head Detection
- **Plumerai Familiar Face Identification** ← This presentation
- Plumerai Inference Engine – ML Compiler



How Plumerai makes AI tiny

We cover the entire
AI stack

Plumerai Data Pipeline

Plumerai Tiny Models

Plumerai Inference Engine

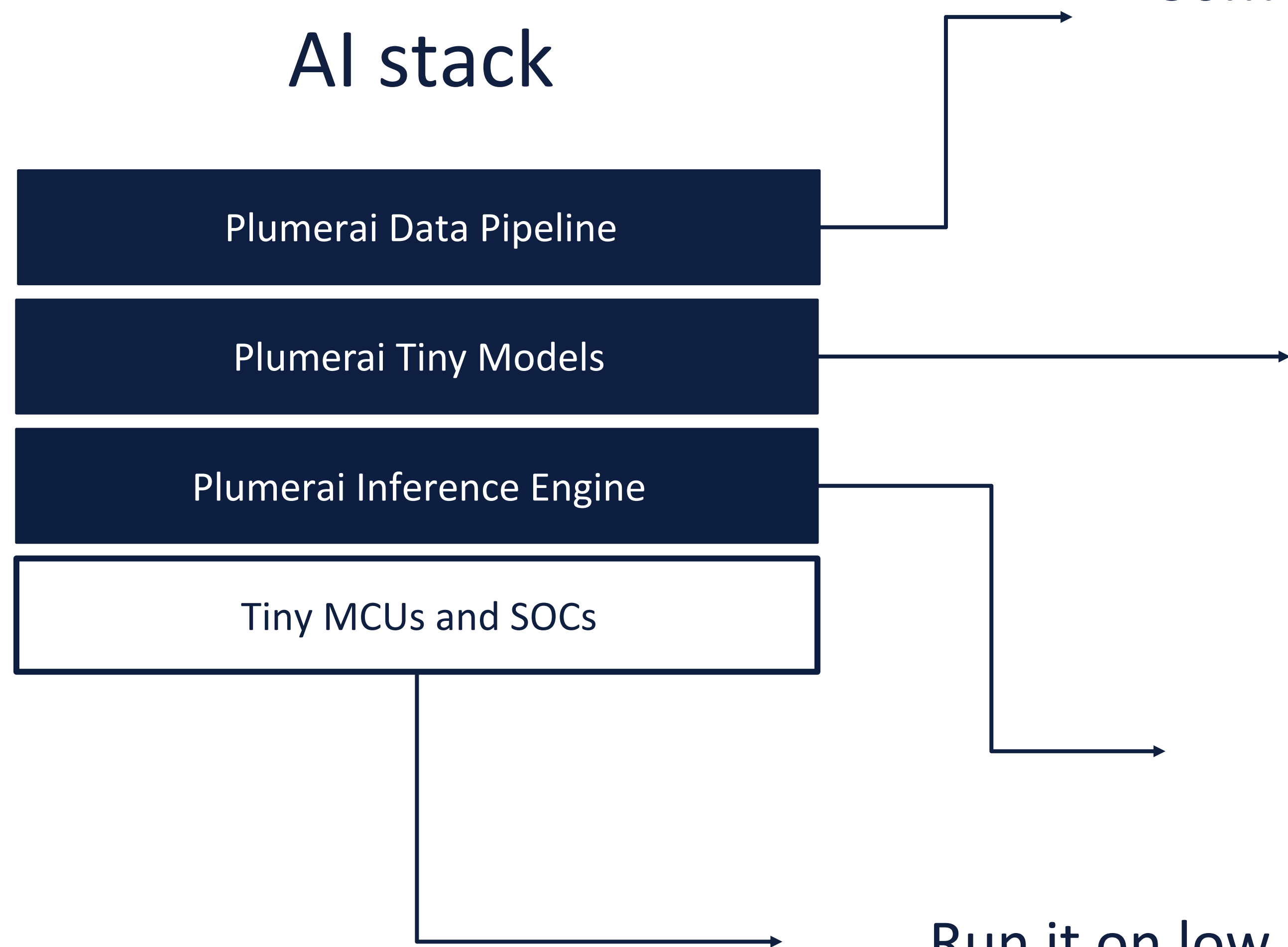
Tiny MCUs and SOCs

30M images, extensive in-house tooling to
analyze, label, and optimize

Custom architectures and
training strategies

World's fastest inference engine

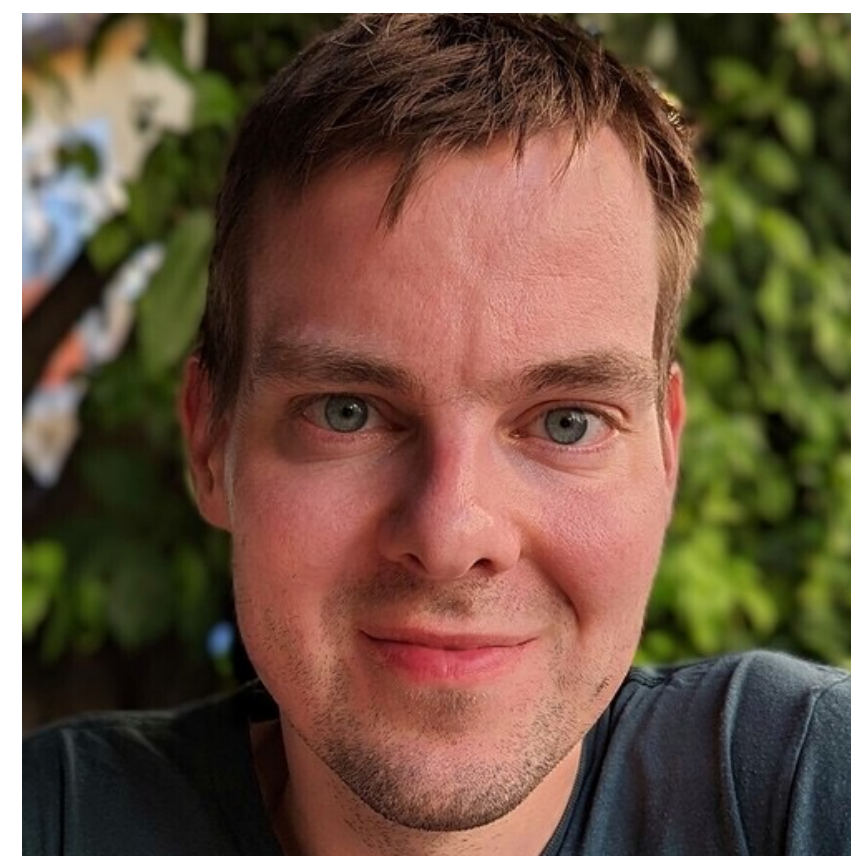
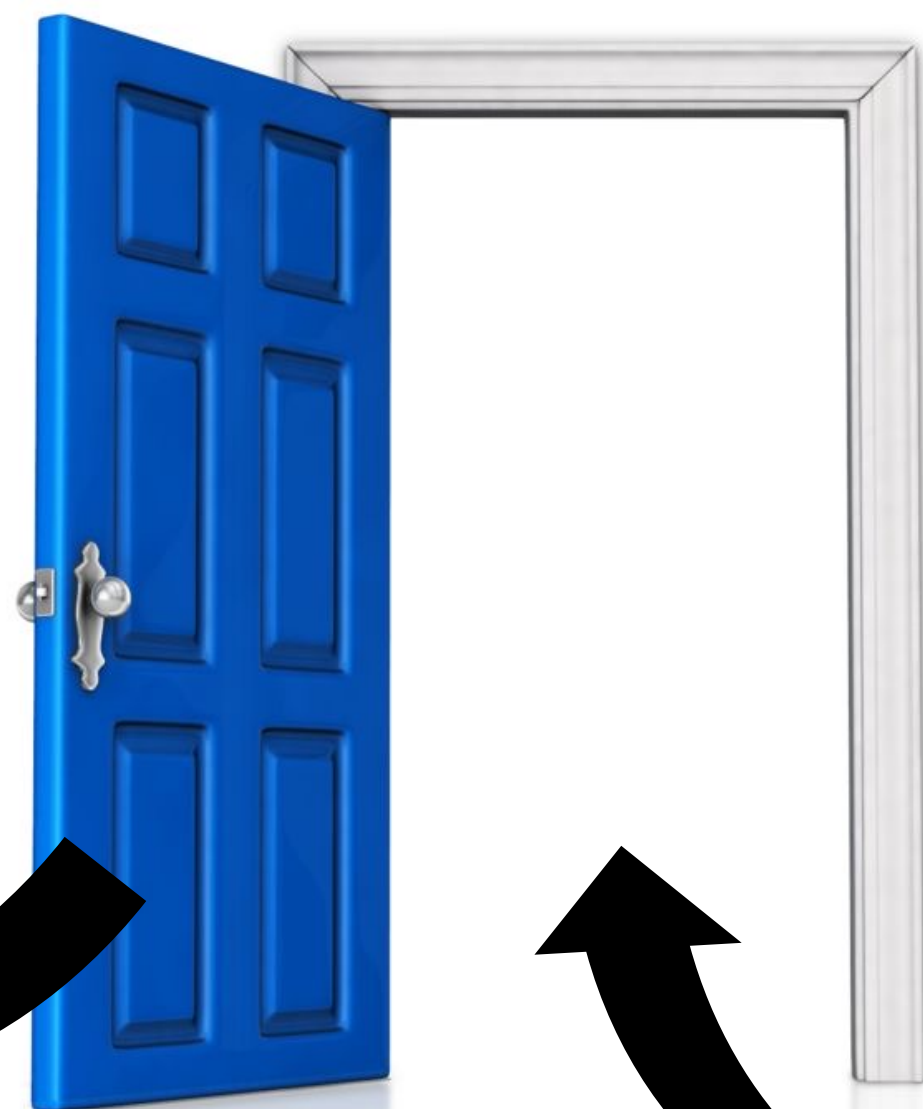
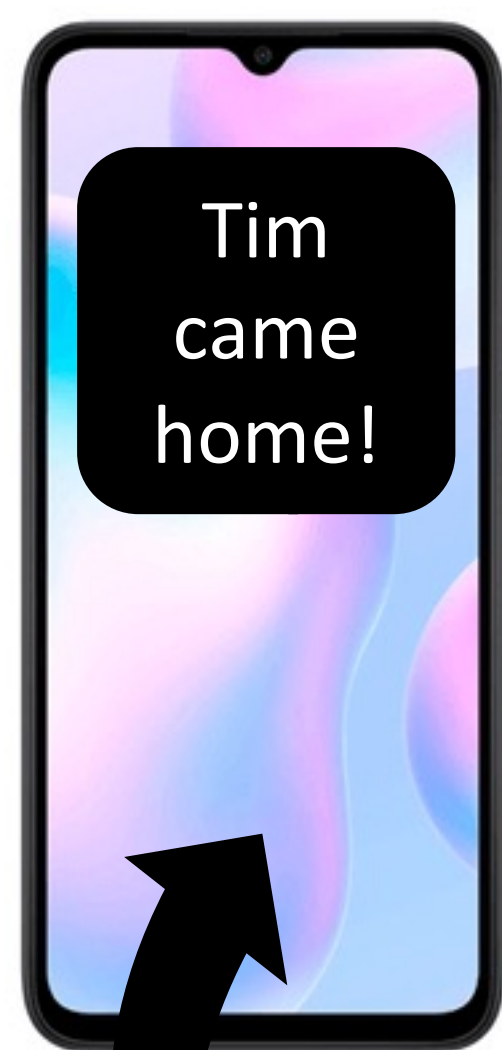
Run it on low power, small processors



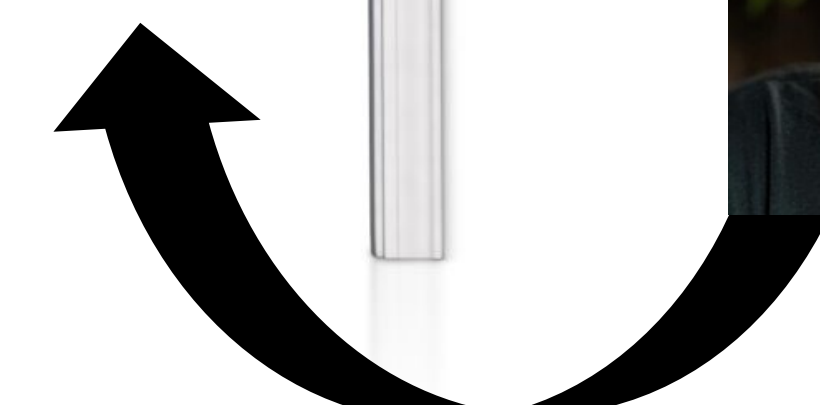


Familiar Face Identification

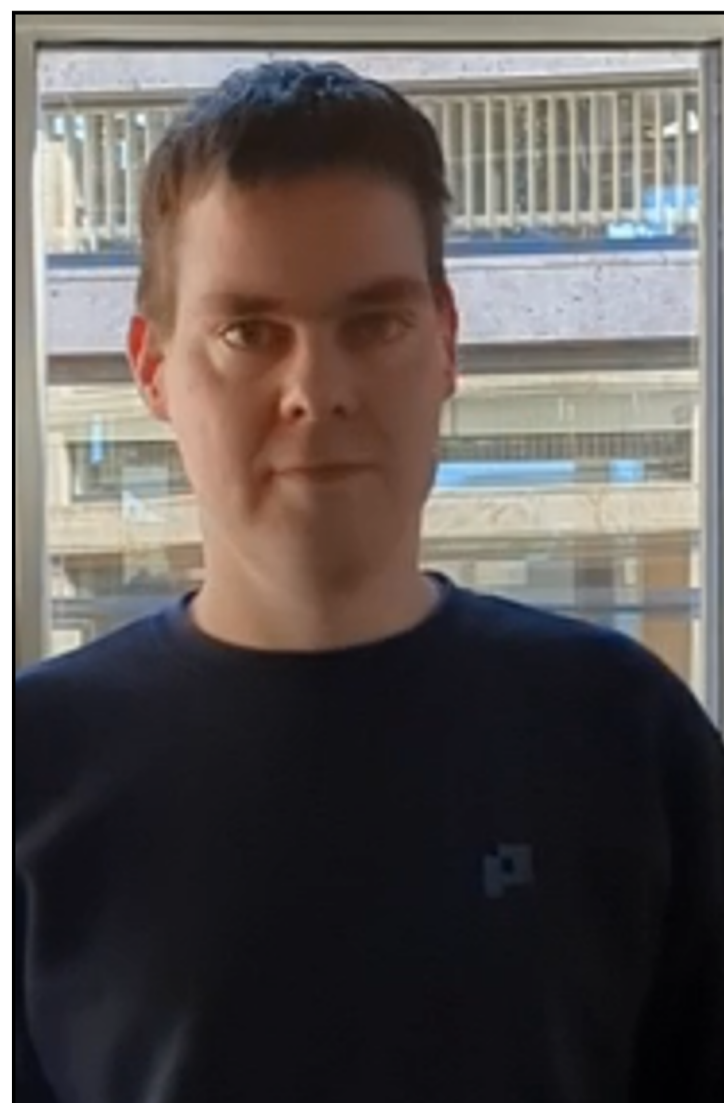
Fully local, no cloud. Preserves privacy.



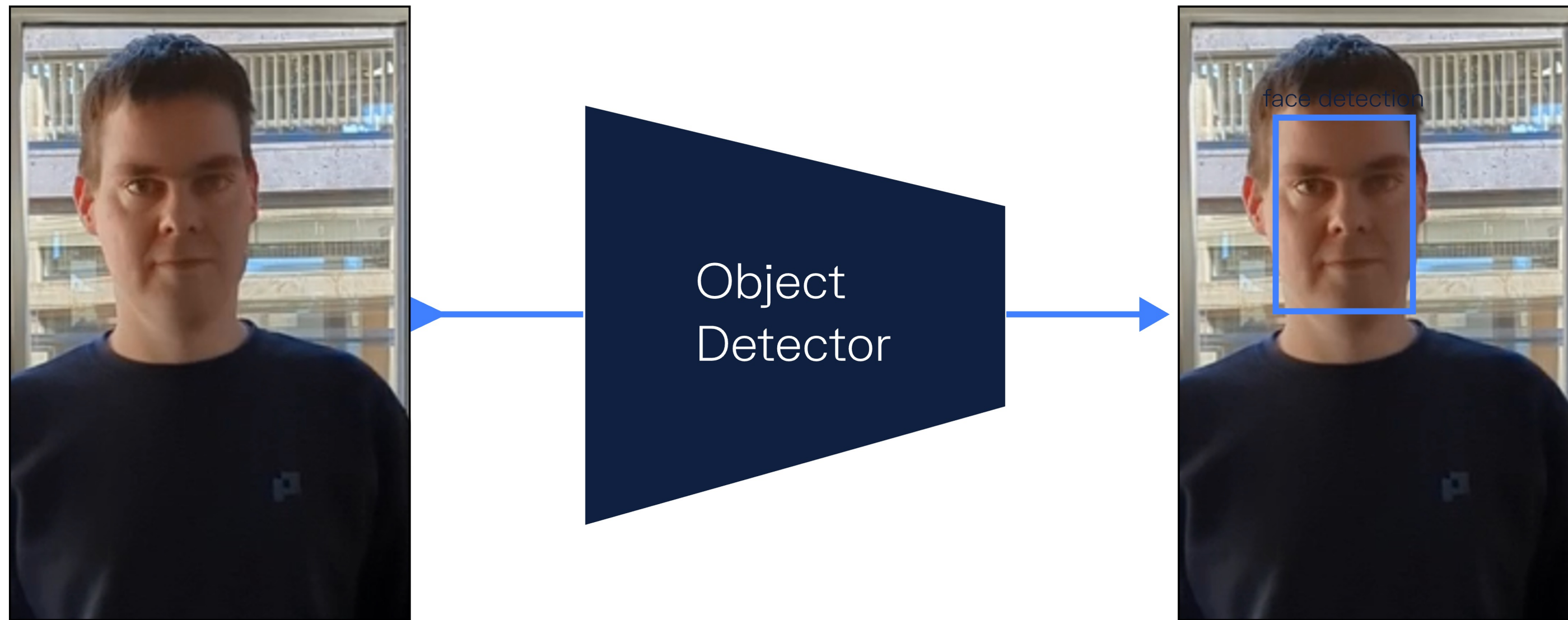
Shall I make you a Quad Venti White Mocha Frappuccino again?



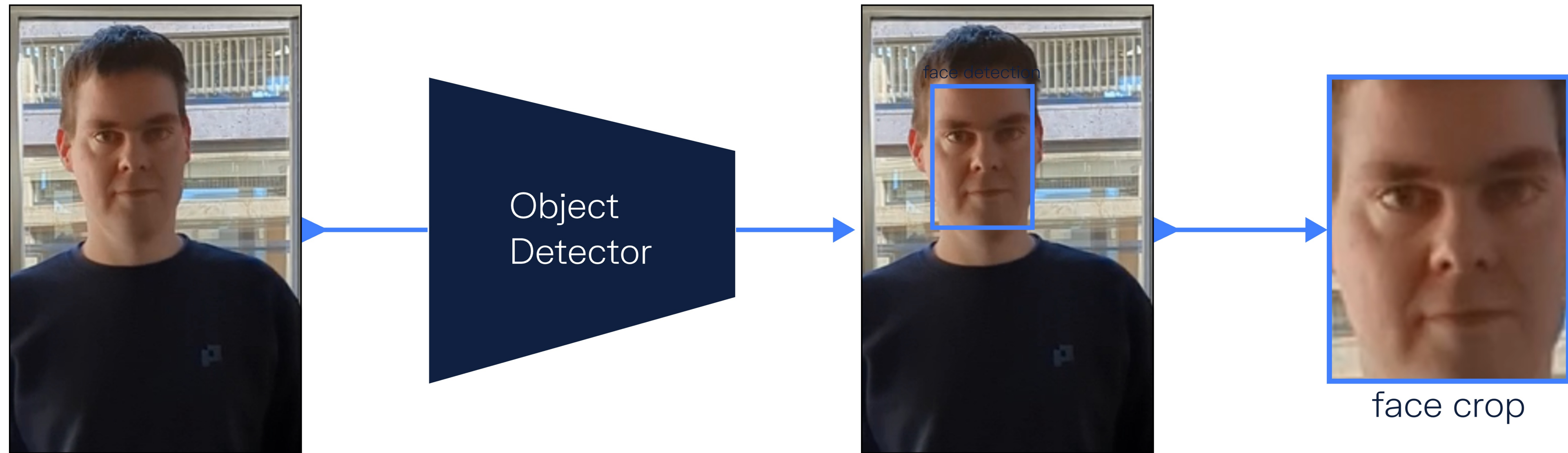
Face Identification



Face Identification



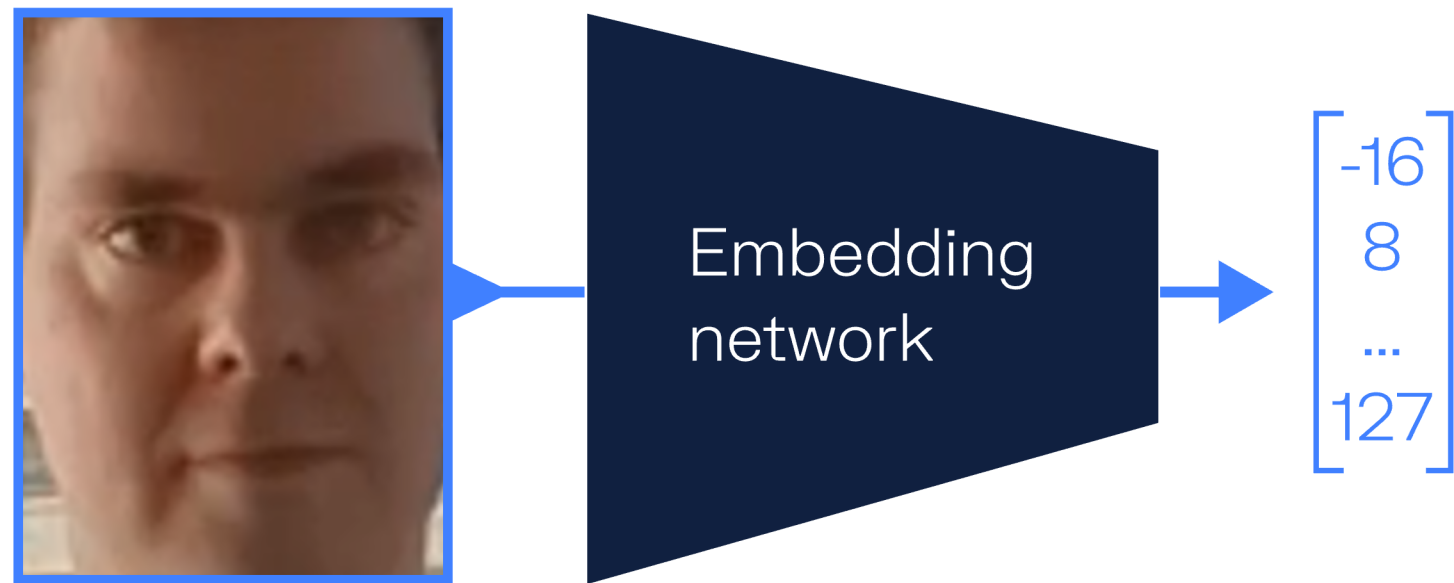
Face Identification



Face Identification



Face Identification



Face Identification



Face Identification



Face Identification



Face Identification: enrollment



Face Identification: enrollment



Face Identification: inference



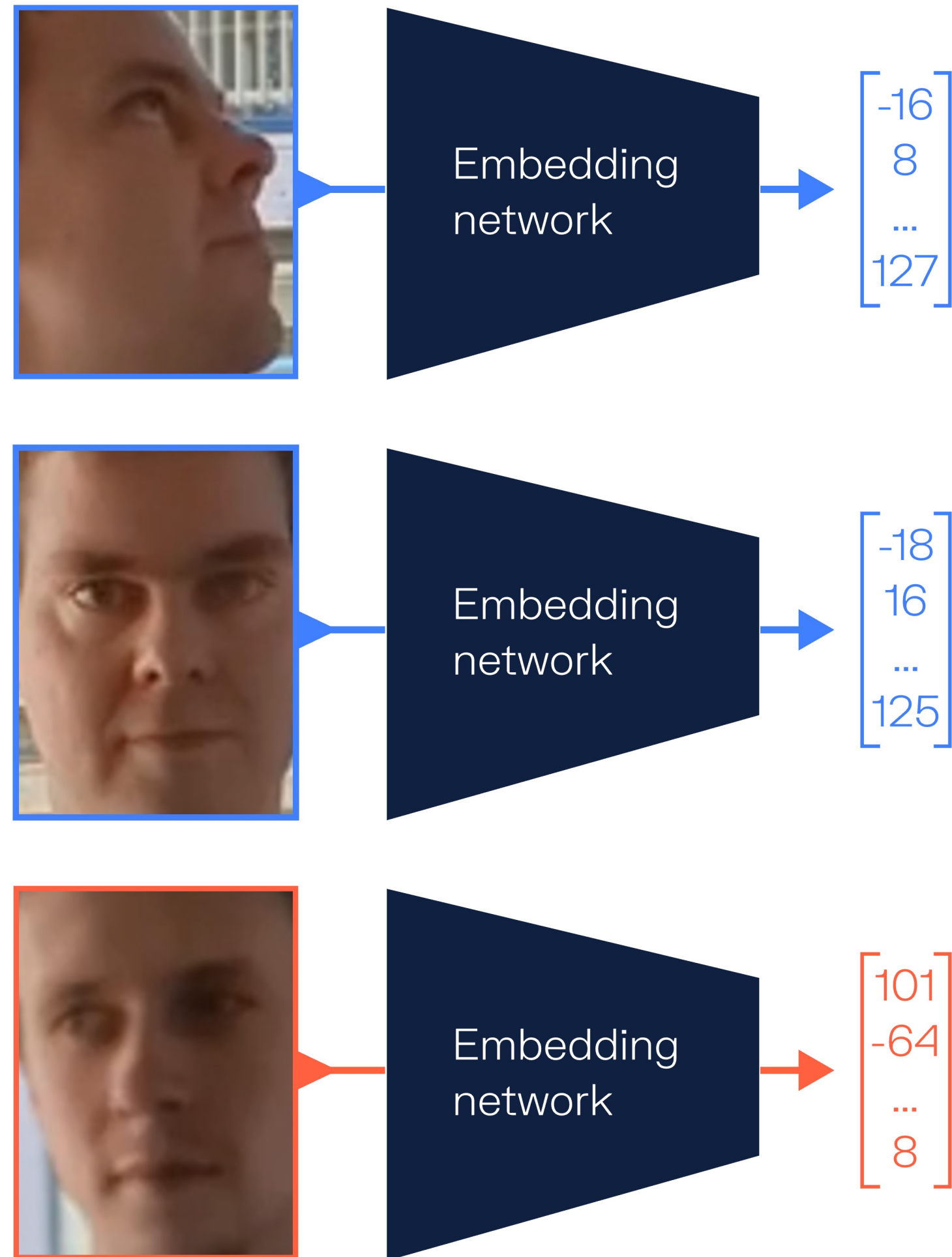
Face Identification: inference



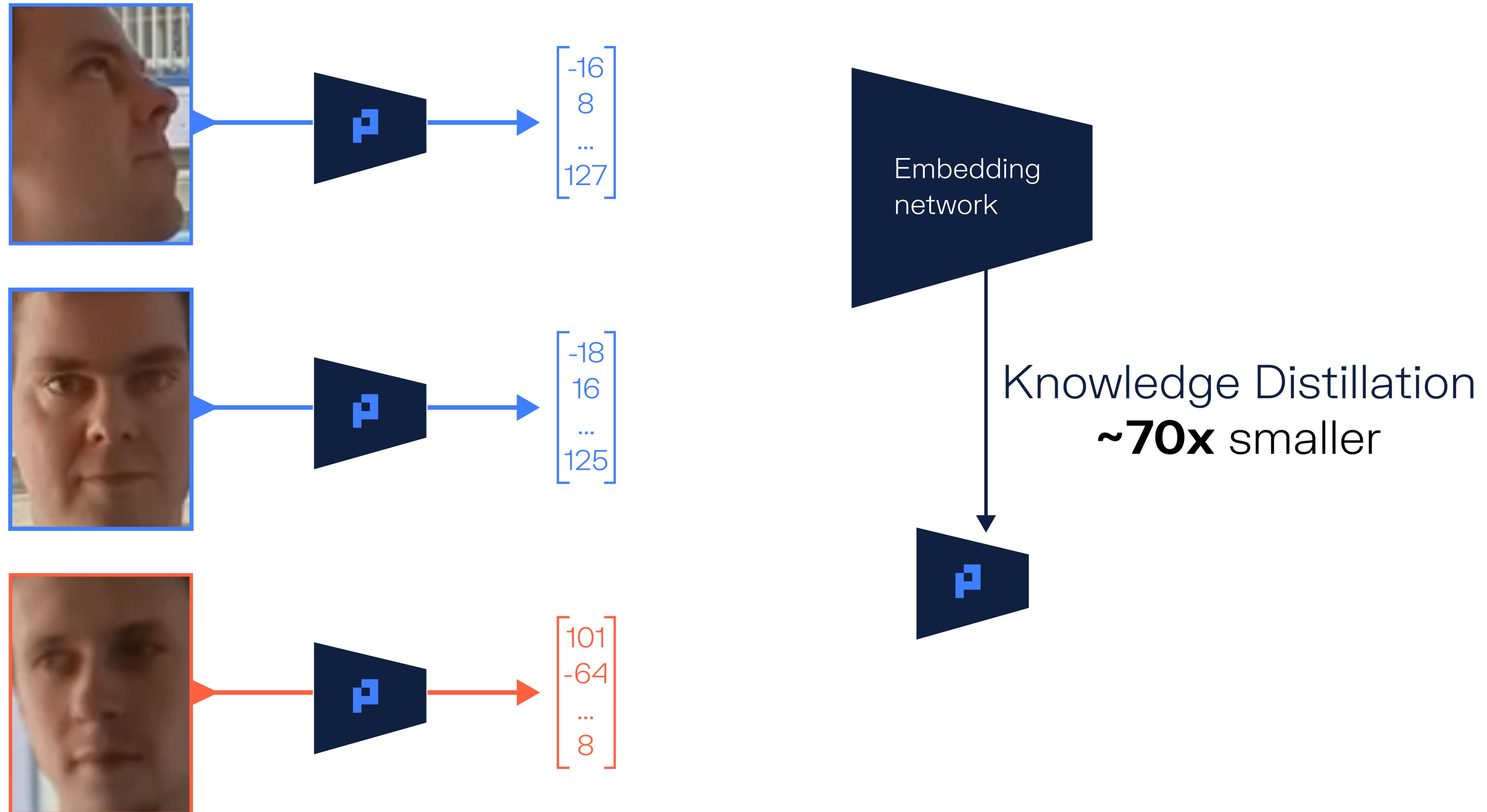
Making it **tiny** & **fast**



Making it tiny & fast



Making it tiny & fast



Making it **tiny & fast**

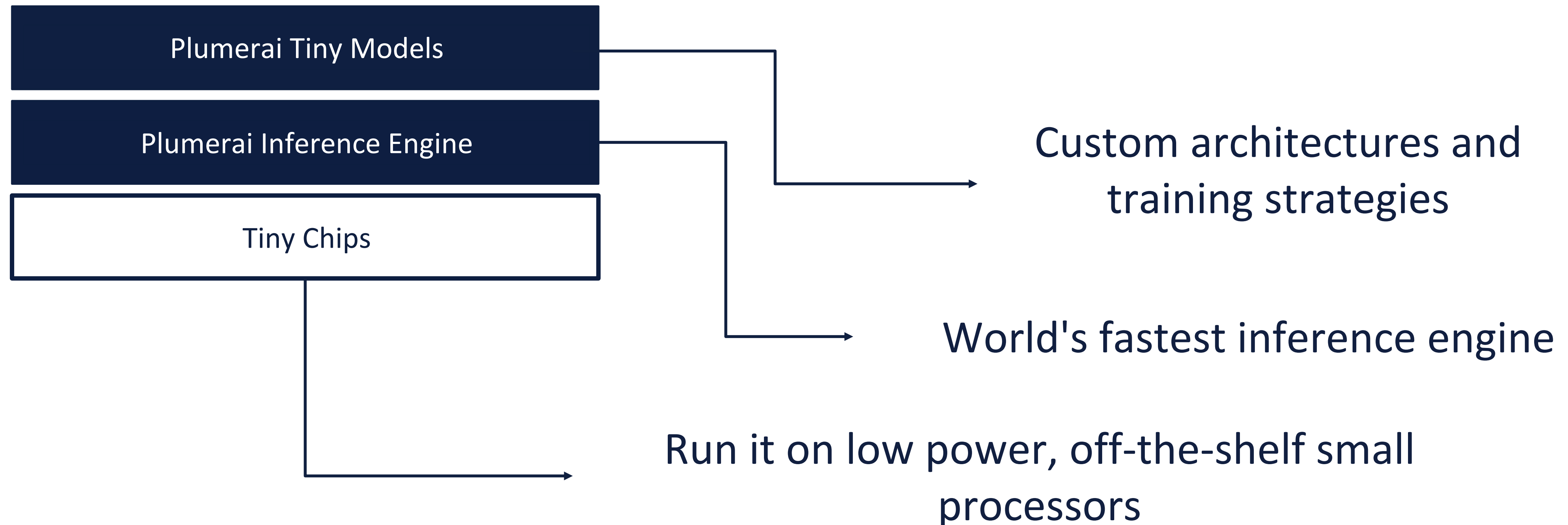


SINGLE CORE ARM CORTEX-A72 @ 1.5 GHz

22 frames/s

WITH A TINY FOOTPRINT

5.7 MB



Making it **accurate**



Making it **accurate**



Making it **accurate**



Making it **accurate**

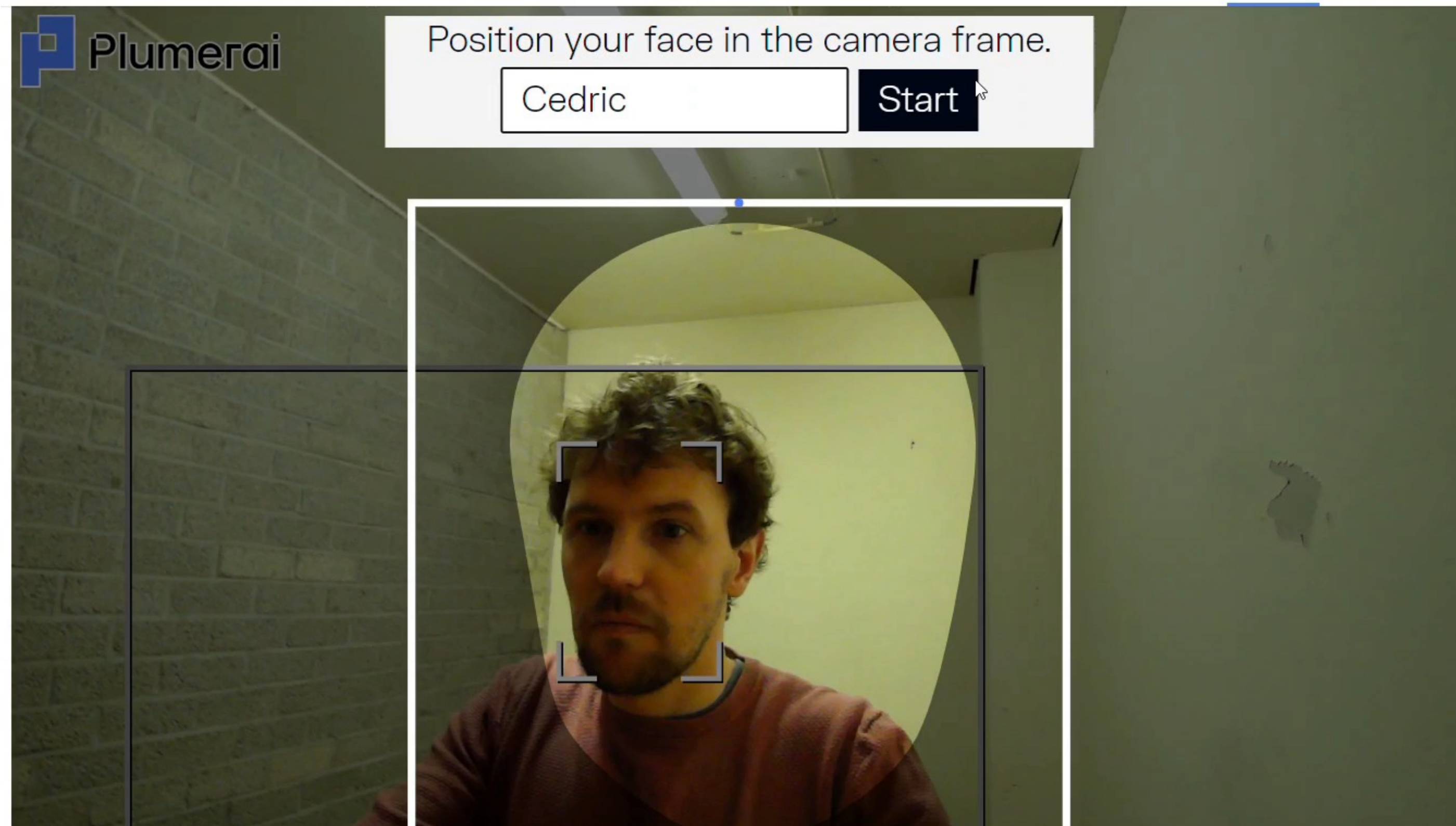


Making it **accurate**





Try it yourself!



SINGLE CORE ARM CORTEX-A72 @ 1.5 GHz

WITH A TINY FOOTPRINT

22 frames/s

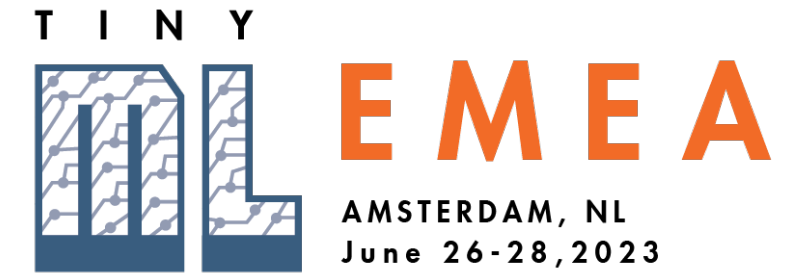
5.7 MB

<https://plumerai.com/face-identification-live>

tim@plumerai.com
hello@plumerai.com
plumerai.com



Copyright Notice



This presentation in this publication was presented as a tinyML[®] EMEA Innovation Forum. The content reflects the opinion of the author(s) and their respective companies. The inclusion of presentations in this publication does not constitute an endorsement by tinyML Foundation or the sponsors.

There is no copyright protection claimed by this publication. However, each presentation is the work of the authors and their respective companies and may contain copyrighted material. As such, it is strongly encouraged that any use reflect proper acknowledgement to the appropriate source. Any questions regarding the use of any materials presented should be directed to the author(s) or their companies.

tinyML is a registered trademark of the tinyML Foundation.

www.tinyml.org