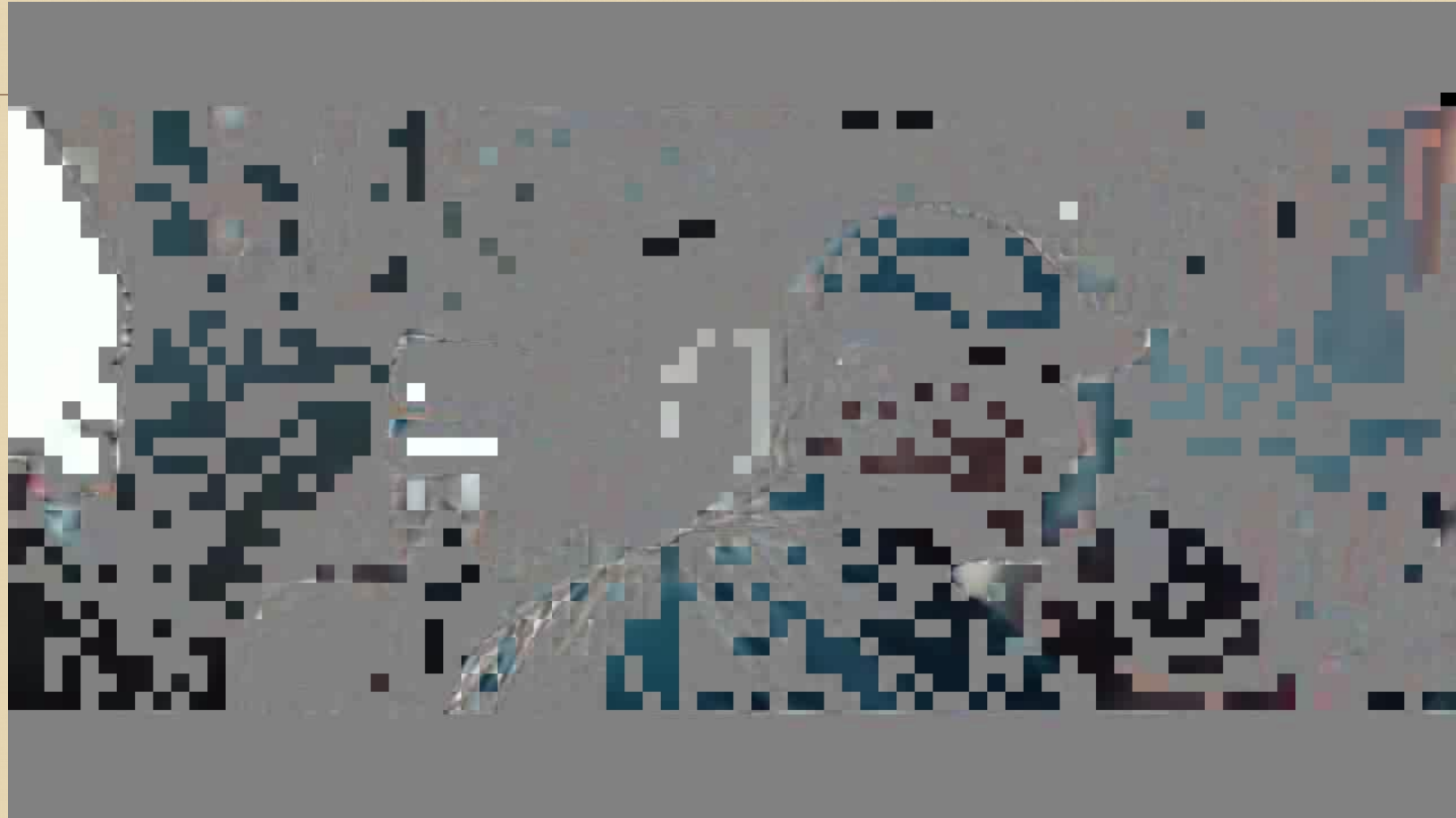# Cloud-based Real Time Face Detection and Recognition

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Motivation

Mission: Impossible – Ghost Protocol
Directed by Brad Bird

Discussion

- Includes: Natural Language Processing, Voice Detection, Database Searching, Human Face Detection, Human Face Recognition etc

- How to do it in about 15 sec?

- It is NOT as easy as the director's thought

- It needs a comprehensive processing

- Like Men's 100 ms: World record: Usain Bolt 9.58s in 2009

- How about we need to finish 400 ms?

Basic Model

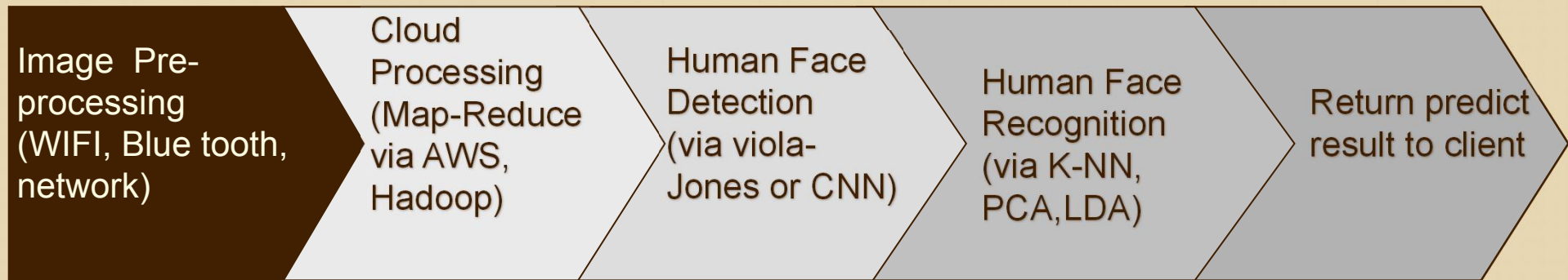- Naive thought: if we had 4 "Bolt", can we get optimal?

100 M 100 M 100 M 100 M

- 9.58s+9.58s+9.58s+9.58s = 38.32 s   (9.58 in parallel)

- How about 4 × 100 metres relay?

- The world record: 36.84s (the Jamaican team at the 2012 London Olympic games)

- Why?

Basic Model

- Basic Model

| Image Pre-processing (WIFI, Blue tooth, network) | Cloud Processing (Map-Reduce via AWS, Hadoop) | Human Face Detection (via viola-Jones or CNN) | Human Face Recognition (via K-NN, PCA,LDA) | Return predict result to client |

Improved Model

- ## Preprocessing in each sub-process

Image Pre-processing (WIFI, Blue tooth, network)

Cloud Processing (Map-Reduce via AWS, Hadoop)

Human Face Detection (via viola-Jones or CNN)

Human Face Recognition (via K-NN, PCA,LDA)

Return predict result to client