CrowdMR: Integrating Crowdsourcing with MapReduce for AI-hard Problems

Jun Chen, Chaokun Wang, Yiyuan Bai

School of Software, Tsinghua University, Beijing 100084, P.R. China

Motivations

- Unsatisfactory accuracy in AI-hard problems.
- Scalability problem is severe.
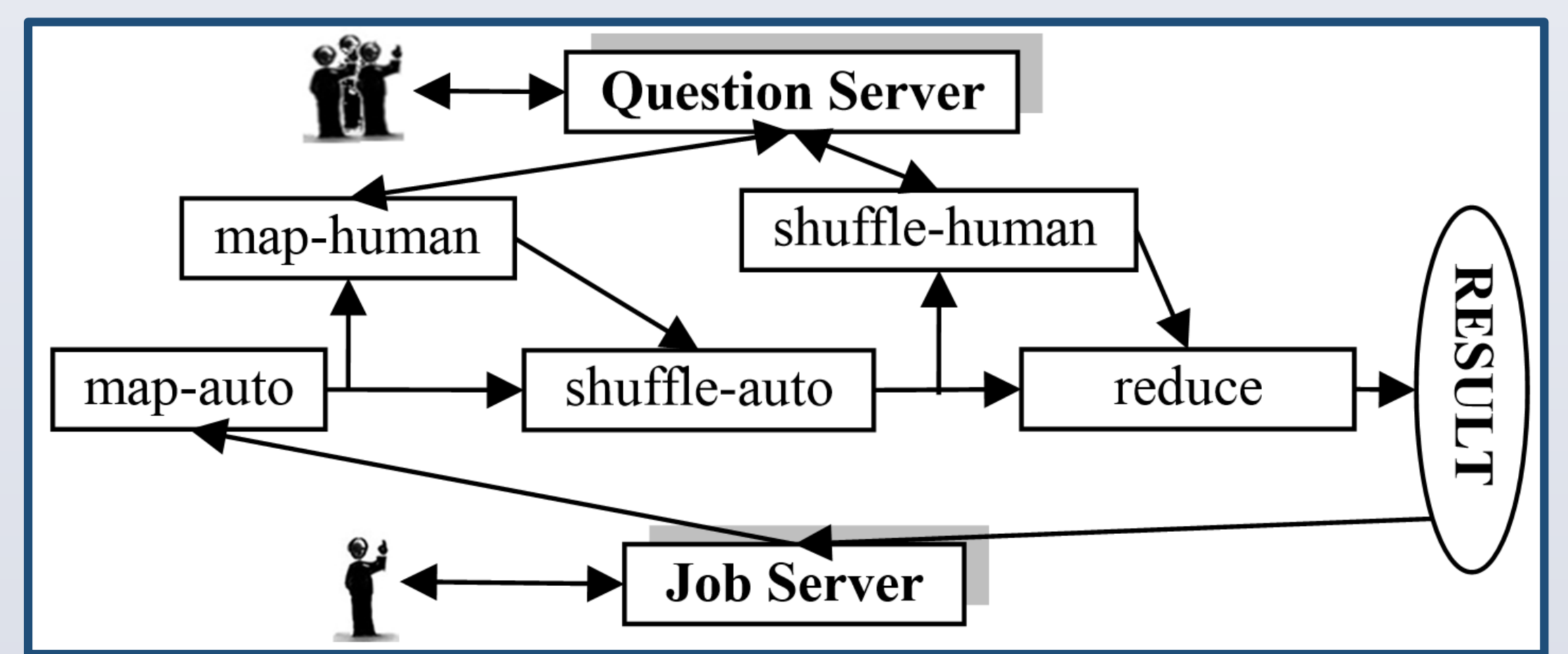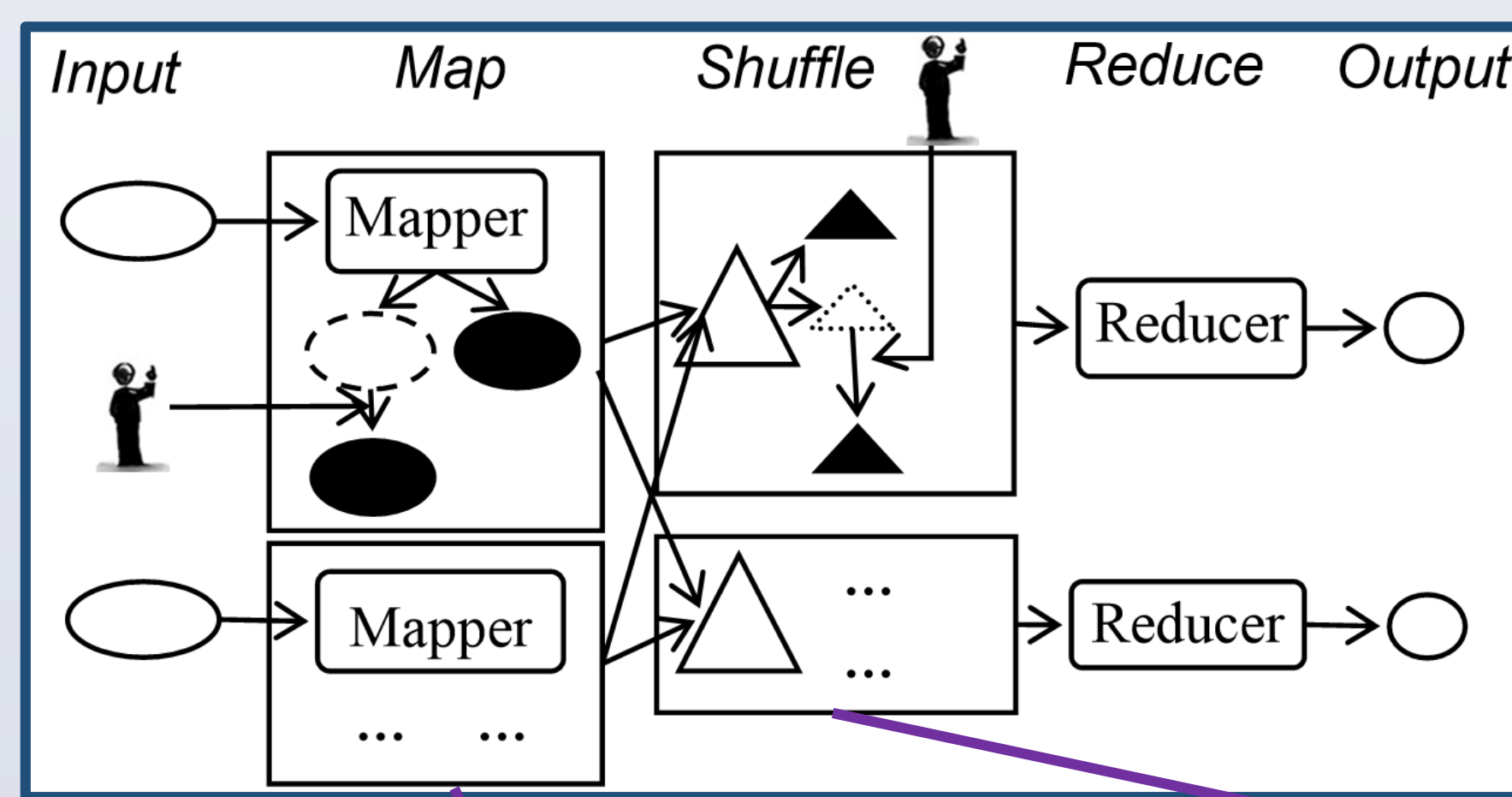- Human intelligence is ignored.

Contributions

- Integrate Crowdsourcing with MapReduce.
- An incremental scheduling method.
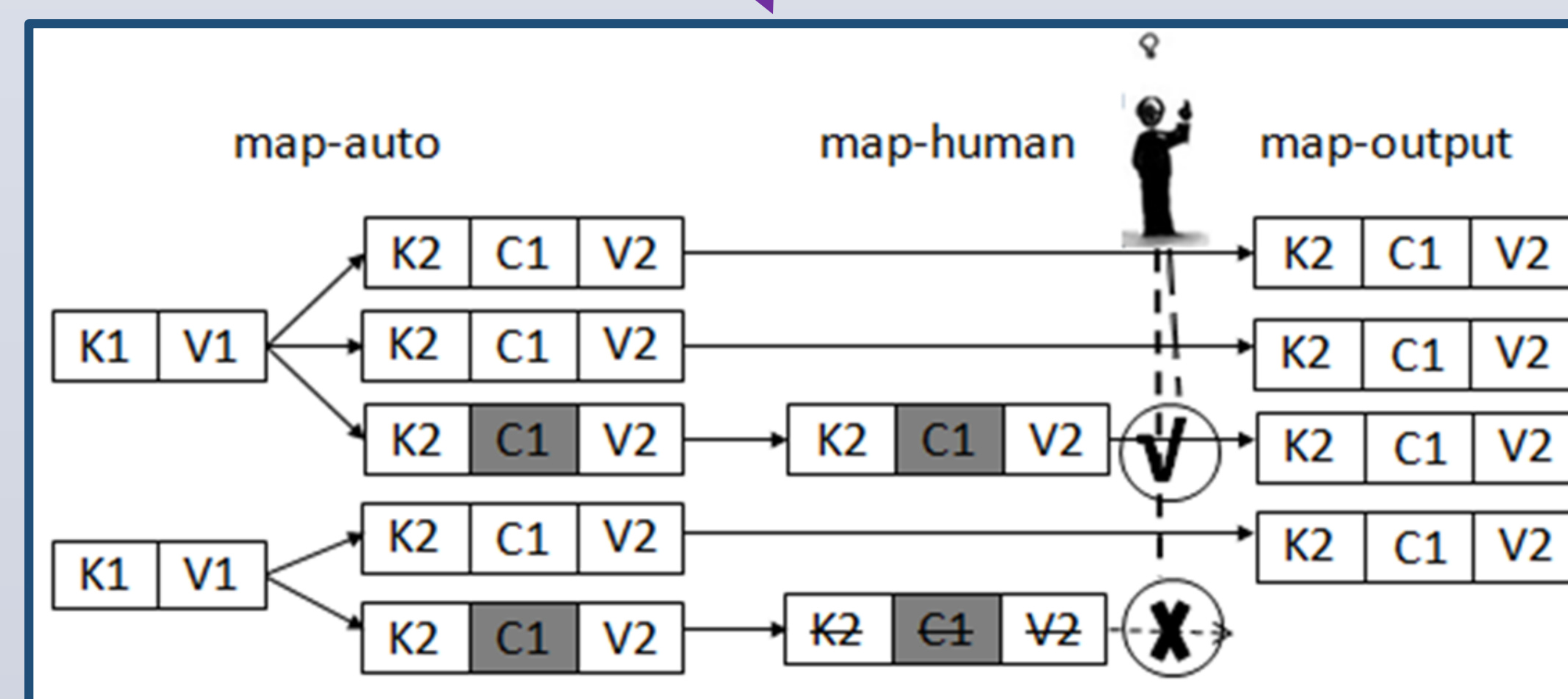- An demonstration of online gender classification.

Workflow

clarity, simplicity, convenience

- Problem decomposition.
- Job distribution.
- Map-auto & **map-human**.
- Shuffle-auto & **shuffle-human**.
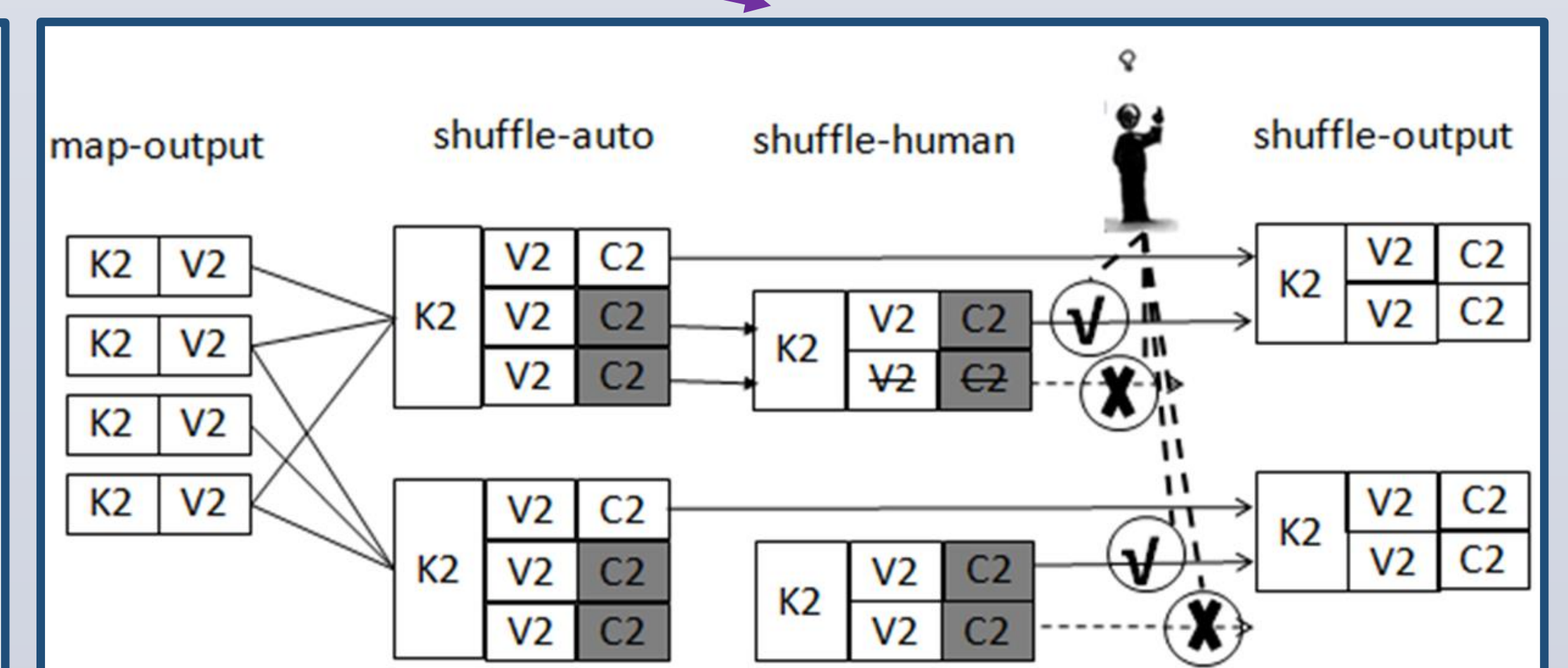- Update results. → *pay-as-you-go*

Features

- Machine computation first.
- Human computation for tasks with low confidence.
- Merge results from both ends.
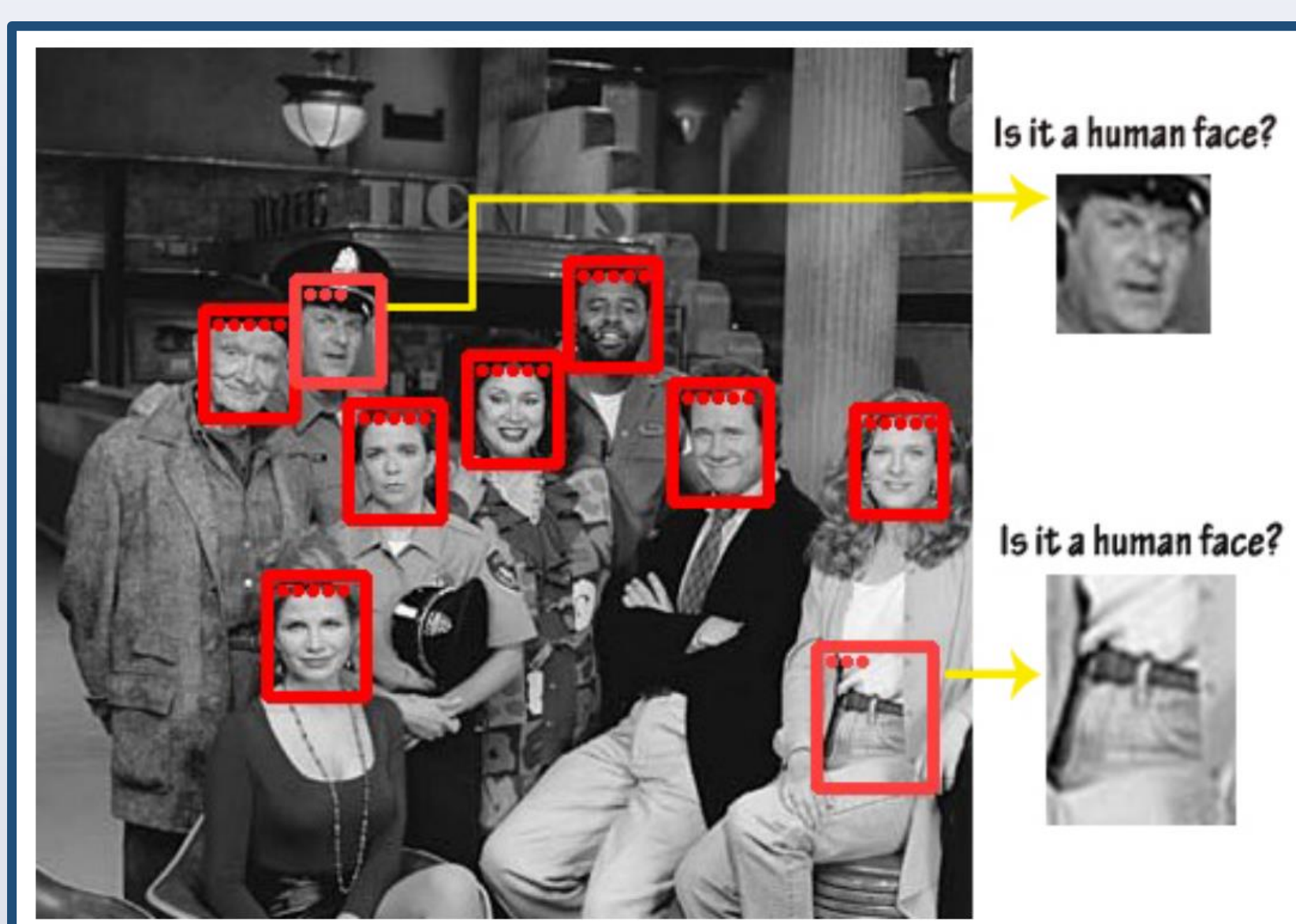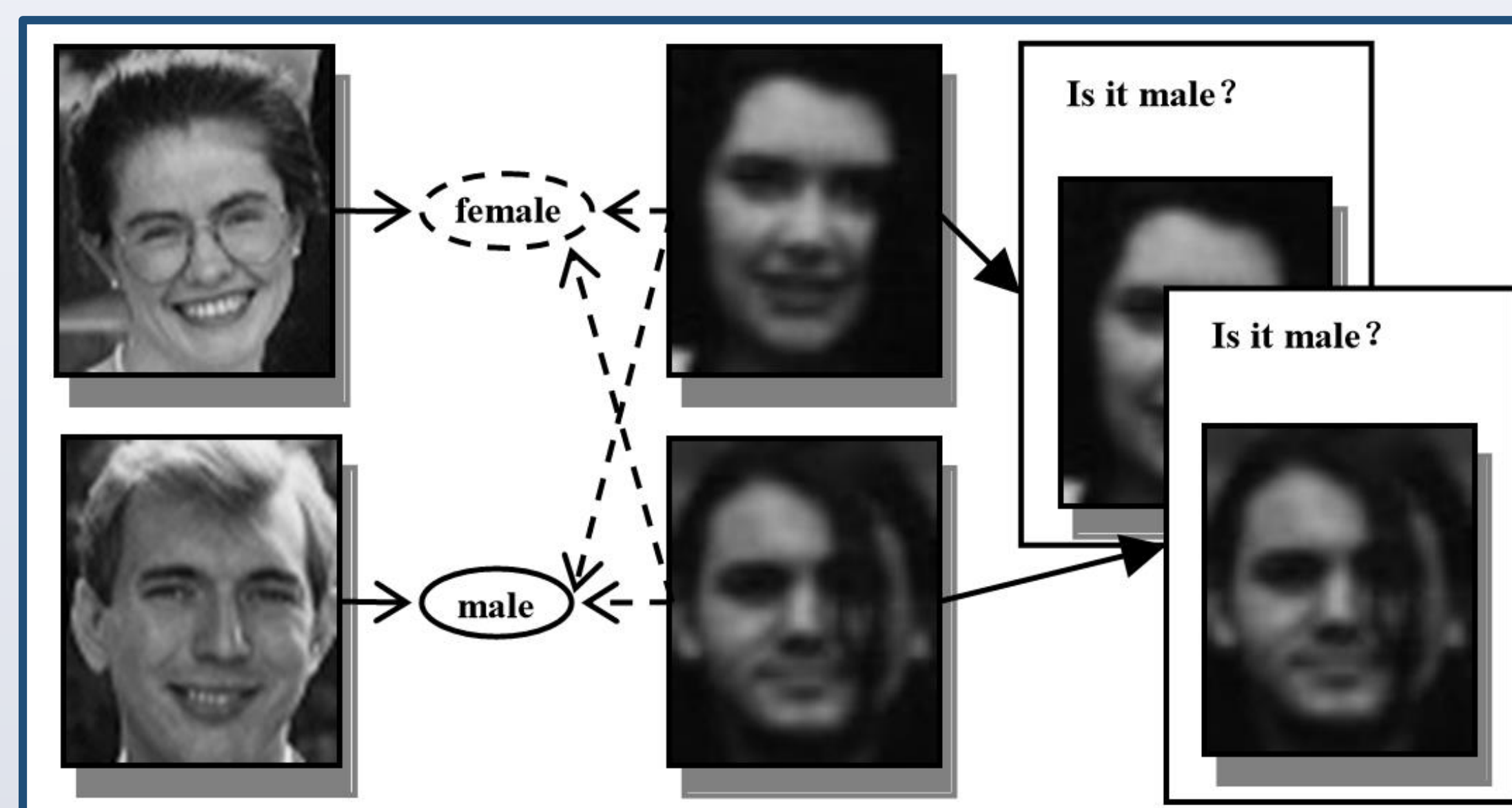- Any-time accessible results.

Map phase

Shuffle phase

Demonstration

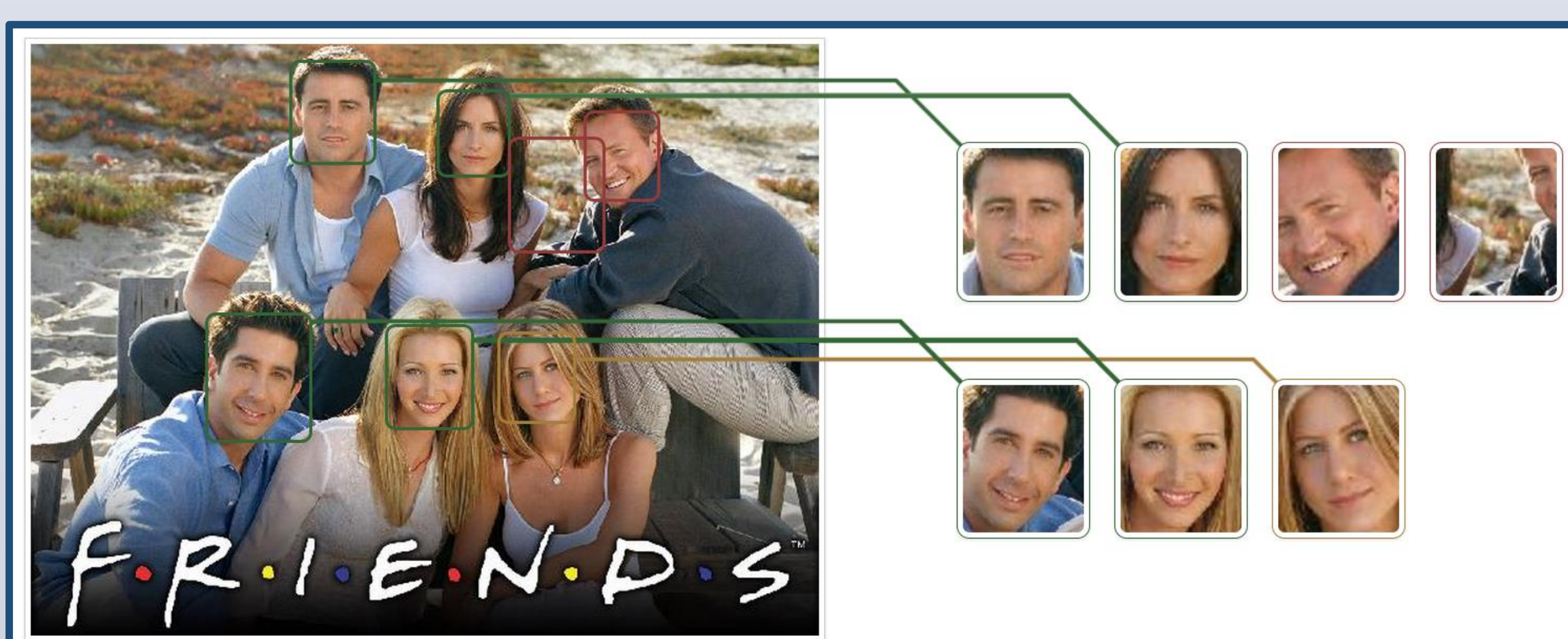- Gender classification from images → Face identification + Gender classification.

Questions

High/Low-confidence Tasks

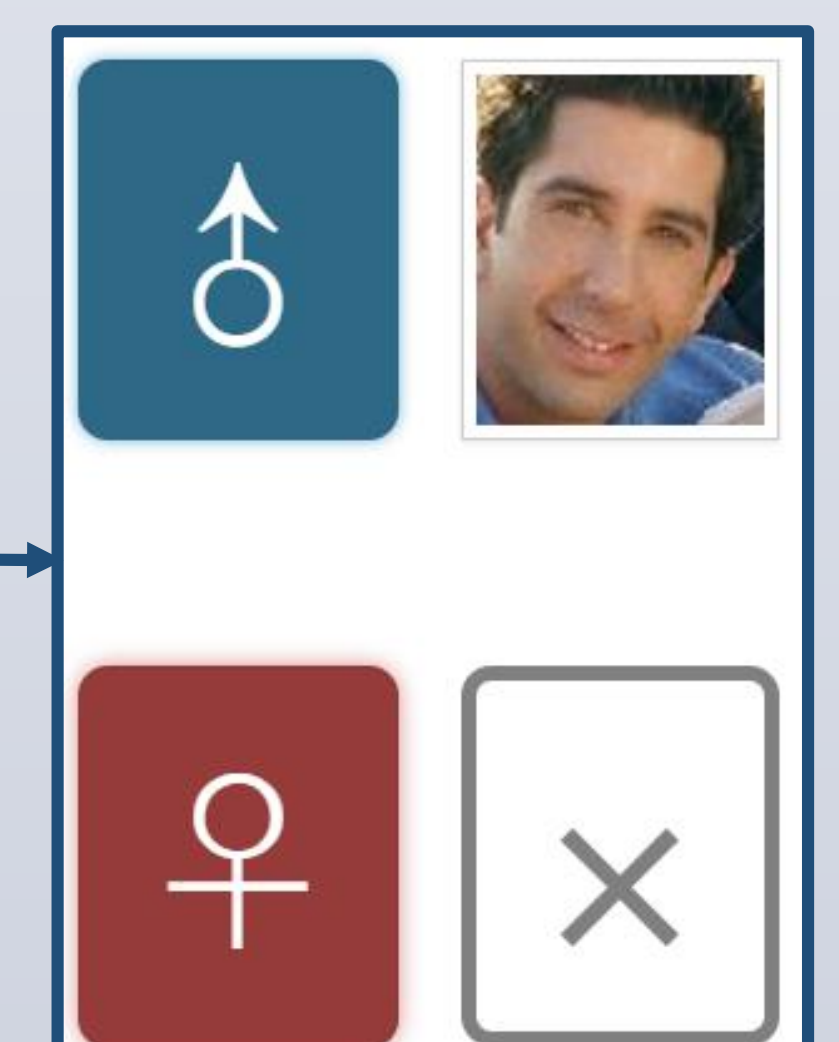Find all **male's faces** in the following pictures:

Completely Automated Public Turing test to Tell Computers and Humans Apart

Map page

Shuffle page

Result page

AAAI-15
Austin, Texas
January 25-30, 2015