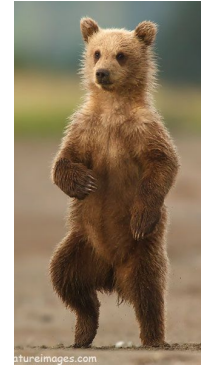


KUB

Team D4



Kristina Banh, Umang Bhatt, Brian Davis

Learning to **dance** is hard

- Needs a teacher
- High cost
- Requires travel

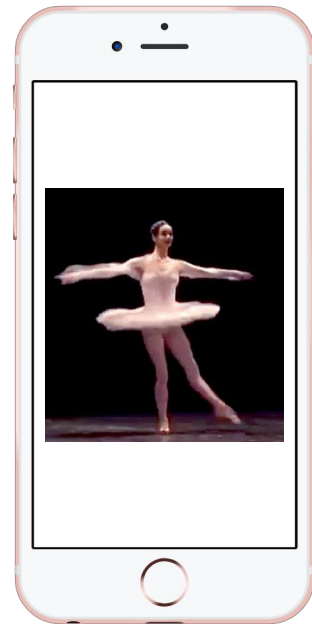


Enter KUB

A **personalized** and **portable** dance trainer

- Pre-trained with a variety of moves
- Capable of correcting your moves

Signals and **Systems** areas



Requirements

We want to:

detect and track movement in **real time**

assess quality of movements

provide **useful feedback** to user

Challenges

Collecting necessary ground truth **data**

Handling **speed differences**

Automating the coaching

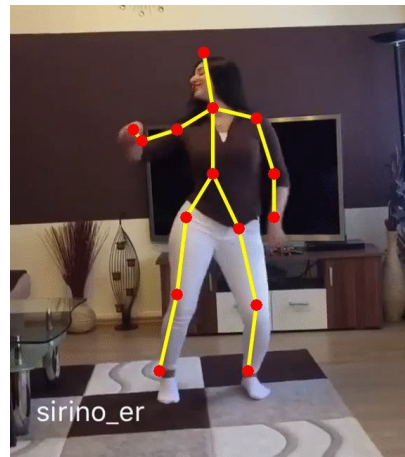
Not exceeding **processing power**

Solution

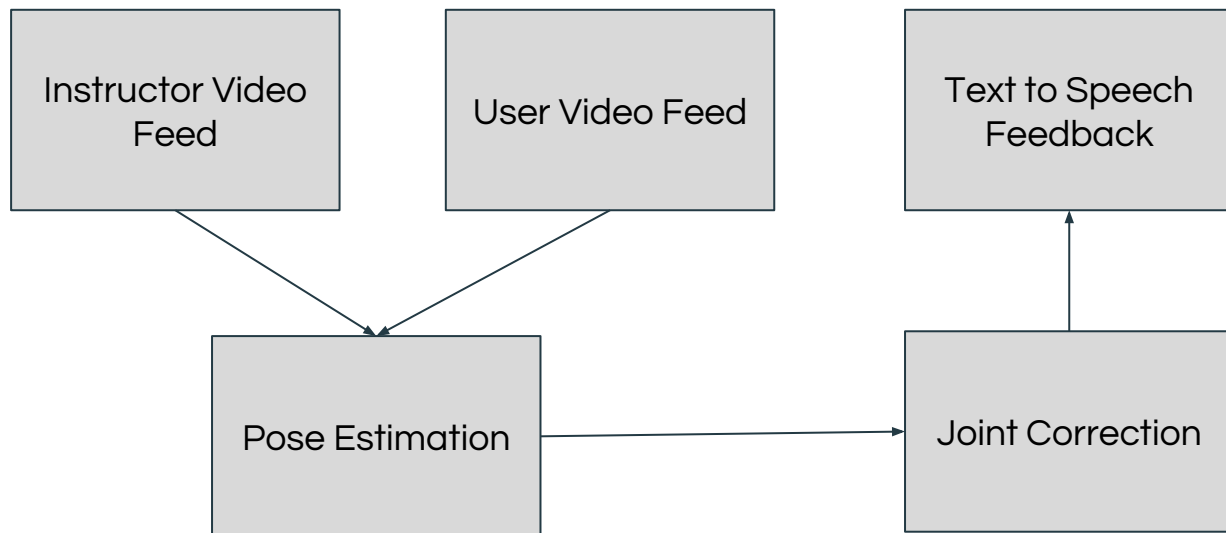
iOS **Mobile** Application

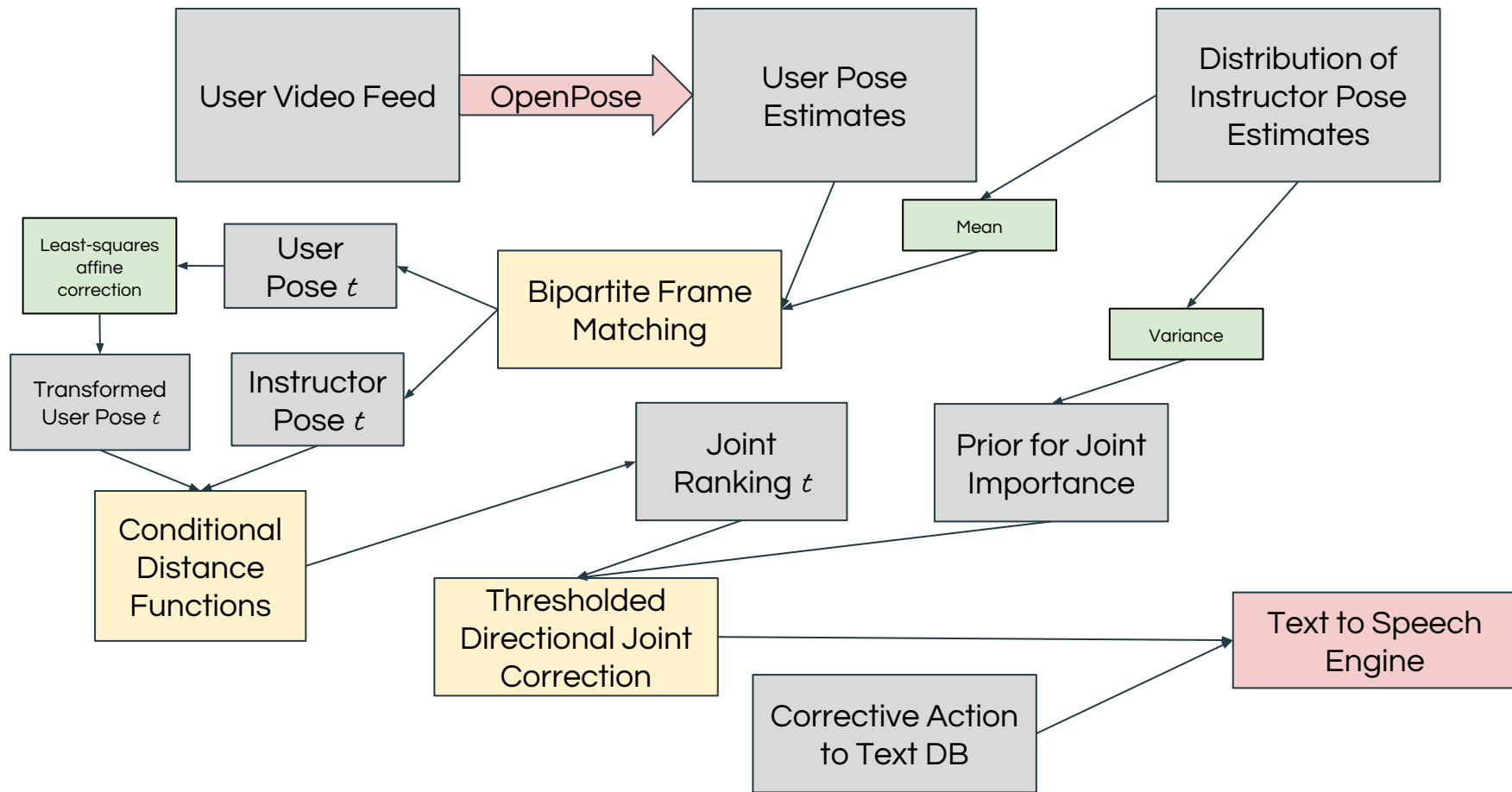
OpenPose with OpenCV

- Capable of capturing joints in image in real time
- Deal with poses instead of raw images



Design





Data

Proof of concept

- Infra Dance Company
- Still shots → Video Feed

Future milestones

- Hire professionals to gather better ground truth

Metrics

- Pose Detection
 - Manually evaluate that joints are placed correctly
 - Ensure that extracted poses correspond to photo stills
- Movement Quality
 - Assess deviation from expert instruction
 - Compare instruction prioritization
- Feedback Quality
 - User rating for multiple criteria
 - Monitor in-app user improvement

Tasks

- Kristina
 - Data collection
 - App creation
 - Text to speech
- Umang
 - Spatial data transformation
 - Aggregation and distance metrics
- Brian
 - Temporal data transformation
 - Data pipelining

Schedule

