VIDEO ANALYSIS OF INFANTS AND CHILDREN
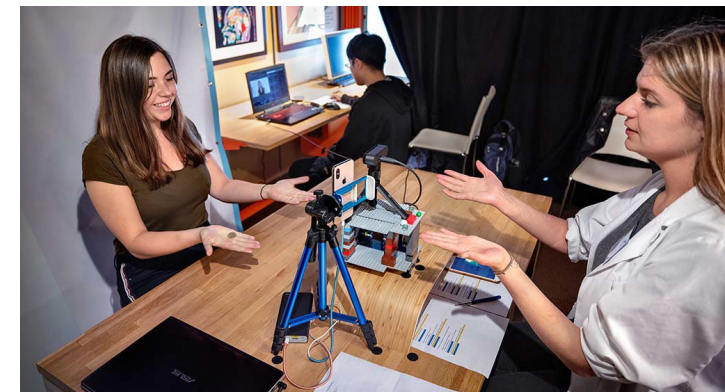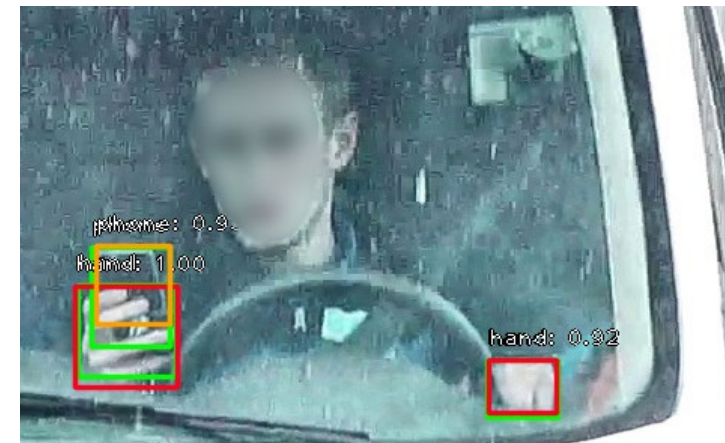
RONALD POPPE

RONALD POPPE

Associate professor Utrecht University

- Computational analysis of human behavior

Applications:

- Driver monitoring, surveillance and security
- General action recognition
- Sports and play analysis
- Deception detection
- **Infant health**
- **Parent-child interactions**

#1

INFANT HEALTH

Photo by Mae Mu on Unsplash

AIM

- Continuous monitoring of pre-terms in neonatal intensive care units
- Tailoring care to state of the infant

Scope

- Sleep state
- Discomfort/pain
- Appetite

MEASUREMENT

- Quantitative task
- Common face and body models

Challenges

- Many occlusions
- Different body sizes
- Less distinctive facial and pose features

Off-the-shelf solutions not suitable

SOLUTION

- Adaptation of existing models
- Account for physical properties
- Deal with persistent occlusions

Novel training schemes

- Deal with data scarcity
- Deal with systematic differences in recording setting

Kapidis, Poppe, Veltkamp, TPAMI, 2022

Photo by Mae Mu on Unsplash

#2

PARENT-CHILD INTERACTIONS

INTERACTION

- Coordinated movements between multiple people

- Timing (and causality) are essential

Stergiou & Poppe, IMAVIS, 2019
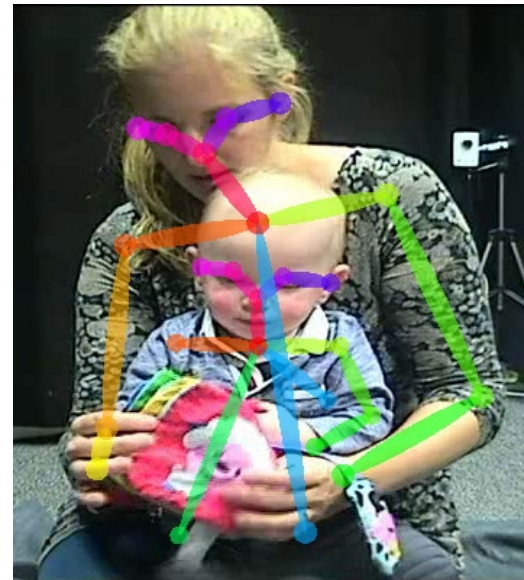

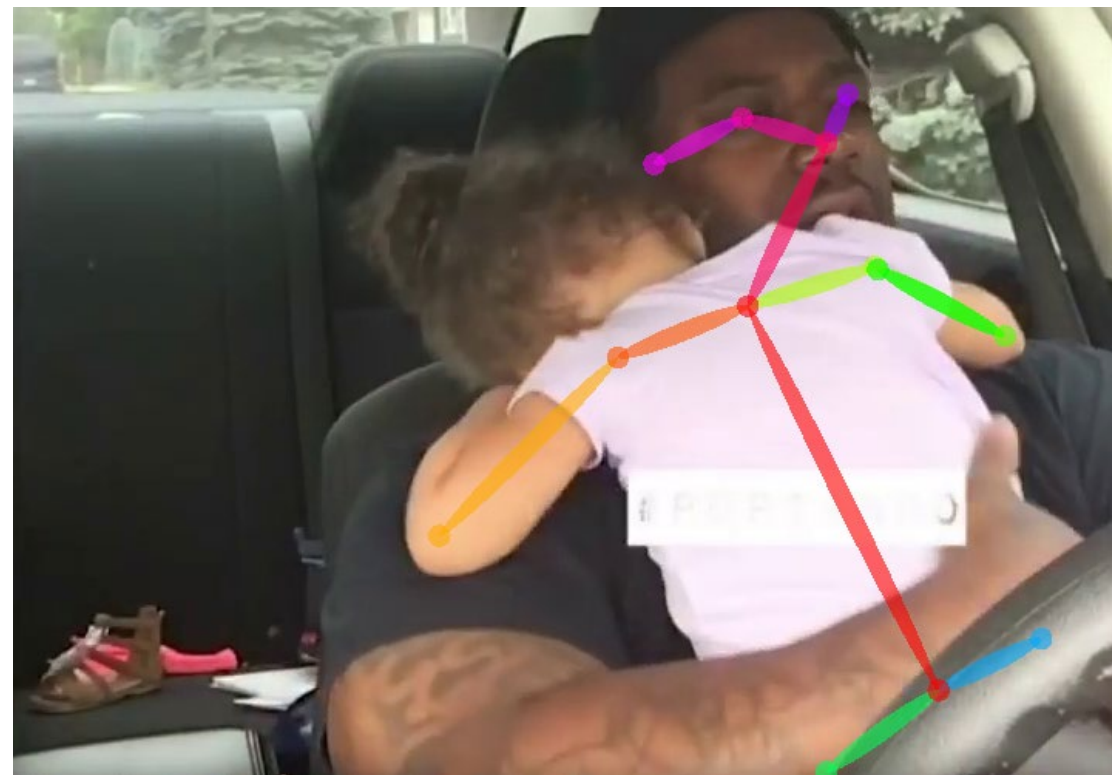Photo by James Mollison, "Playground"

PARENT-CHILD INTERACTION

- Study child development

- Understand play therapy progress

- Use of cohort data

Challenges

- Close proximity

- Contingency of the interaction

- Subtle variation in mutual coordination

- Strong contextual factor

#3

COLLABORATION

Photo by Mae Mu on Unsplash

LET'S TEAM UP!

We offer:

- Expertise on vision-based analysis

- Expertise on setting up complicated recording environments

We're interested in:

- Expertise on temporal analysis

- Expertise on contextual analysis

- Data!

Photo by Piotrek on Unsplash

Photo by Adam Winger on Unsplash

?

THANKS

r.w.poppe@uu.nl