

How AI research in autistic youths may inspire computational diplomacy

report on the future
of an interdisciplinary
data science research journey

Thomas Maillart, PhD
Geneva Tsinghua Initiative
Geneva School of Economics and Management
Centre Universitaire Informatique



**UNIVERSITÉ
DE GENÈVE**

GENEVA SCHOOL OF ECONOMICS
AND MANAGEMENT

Diplomacy* :=

1. the management of relationships between countries
2. **skill in dealing with people without offending or upsetting them**



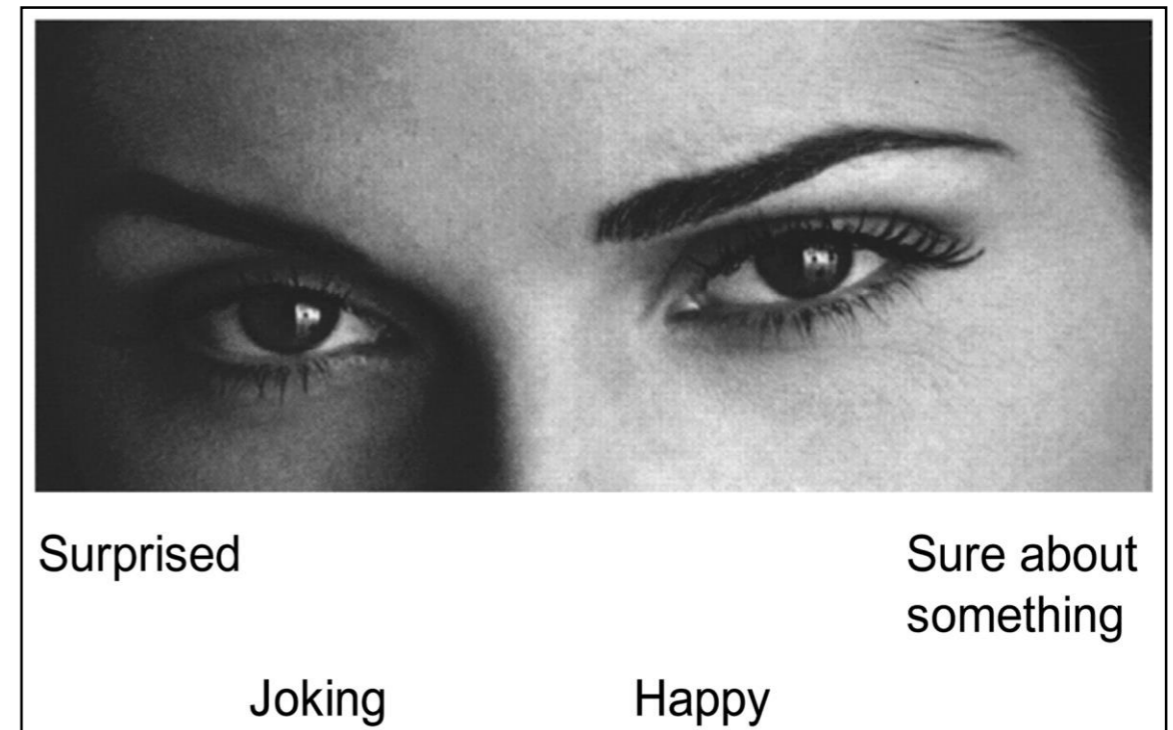
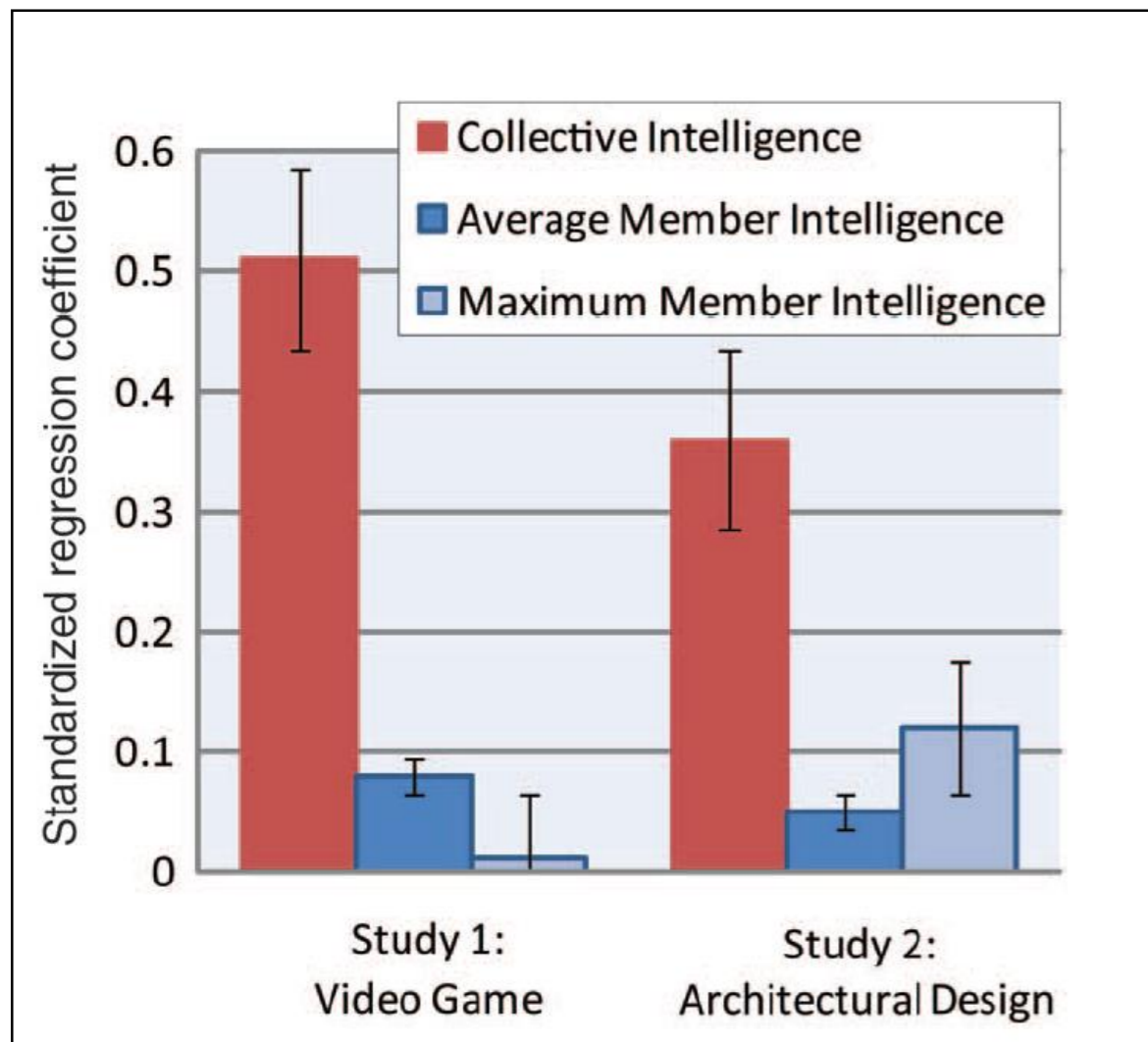
picture of one of the first meeting of the League of Nations

* Cambridge English Dictionary

Social interactions in diplomacy

- possible locations for social interactions
 - formal meeting rooms
 - coffee breaks
 - cocktail parties
- verbal communication
 - highly codified and scripted
 - all words are carefully weighted
- **non verbal** communication
 - eye-contact
 - joint attention
 - facial expression
 - physical distance between diplomats

Why non-verbal communication is important for collective intelligence ?



Simon Baron-Cohen et al. .
Journal of child psychology and psychiatry
42(2):241-251, 2001.

Woolley, Anita Williams, et al. "Evidence for a collective intelligence factor in the performance of human groups." *Science* 330.6004 (2010): 686-688.

Research question

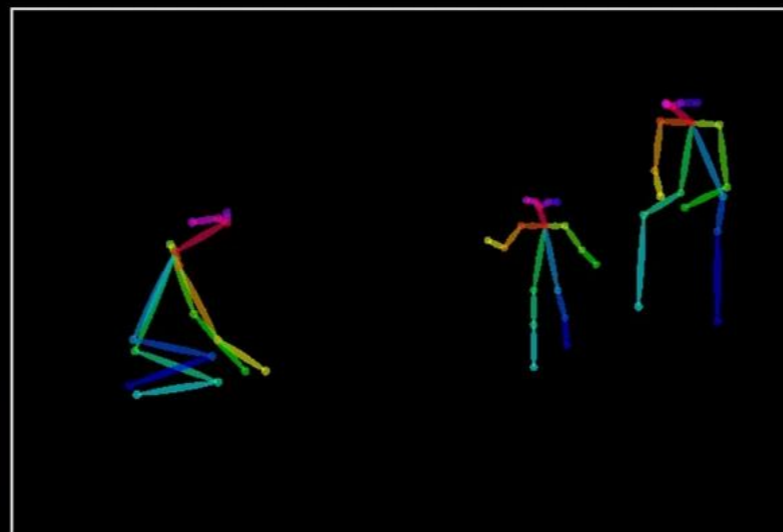
Is it possible to predict the outcomes of multilateral negotiations from non-verbal interactions ?

Research approach

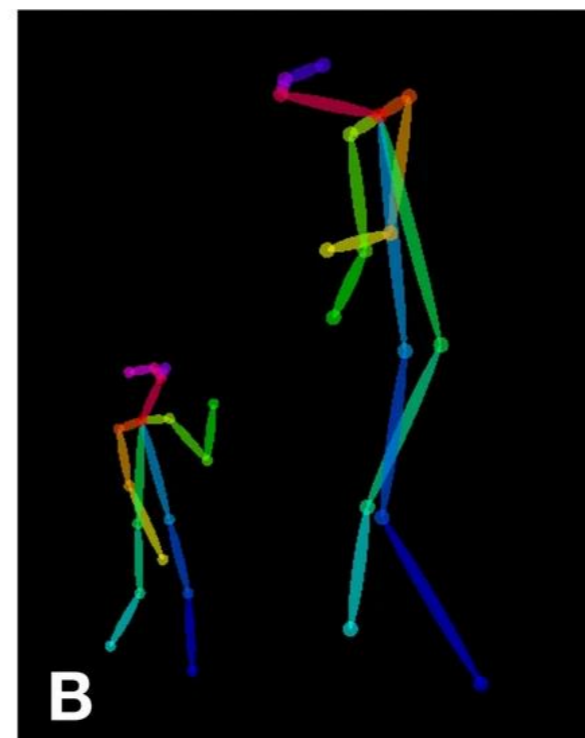
- Inspire and adapt from recent research in autism :
- Autistic spectrum disorder (ASD)
 - 1/54 children
 - difficulties in social interactions
 - altered communication skills
 - repetitive behaviors and restricted interests
- Extract key feature social features + anonymization



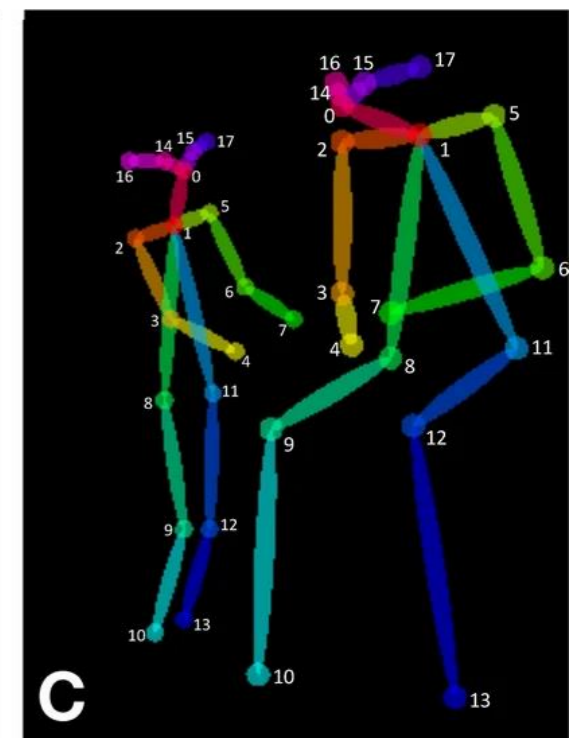
A1



A2



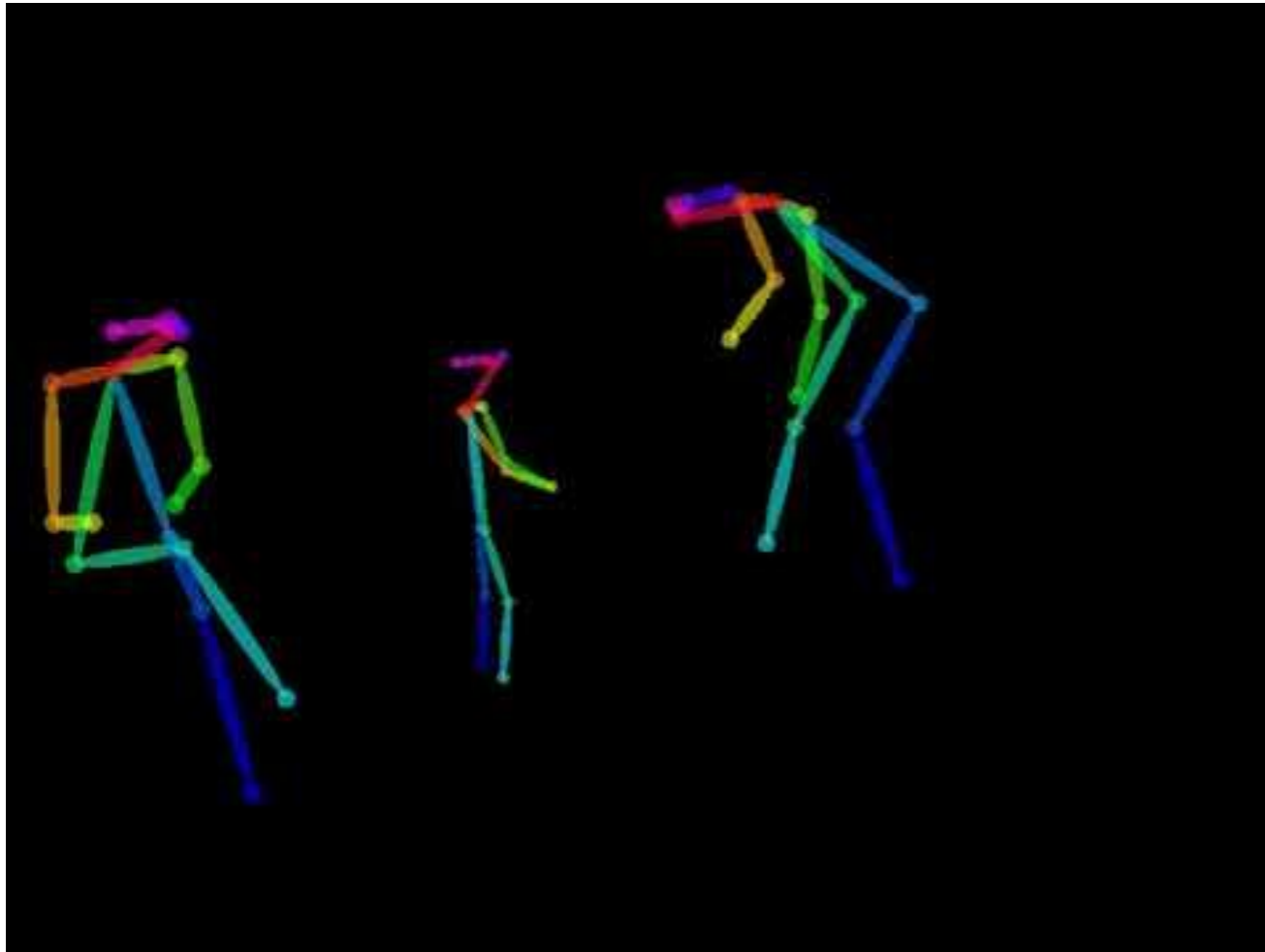
B



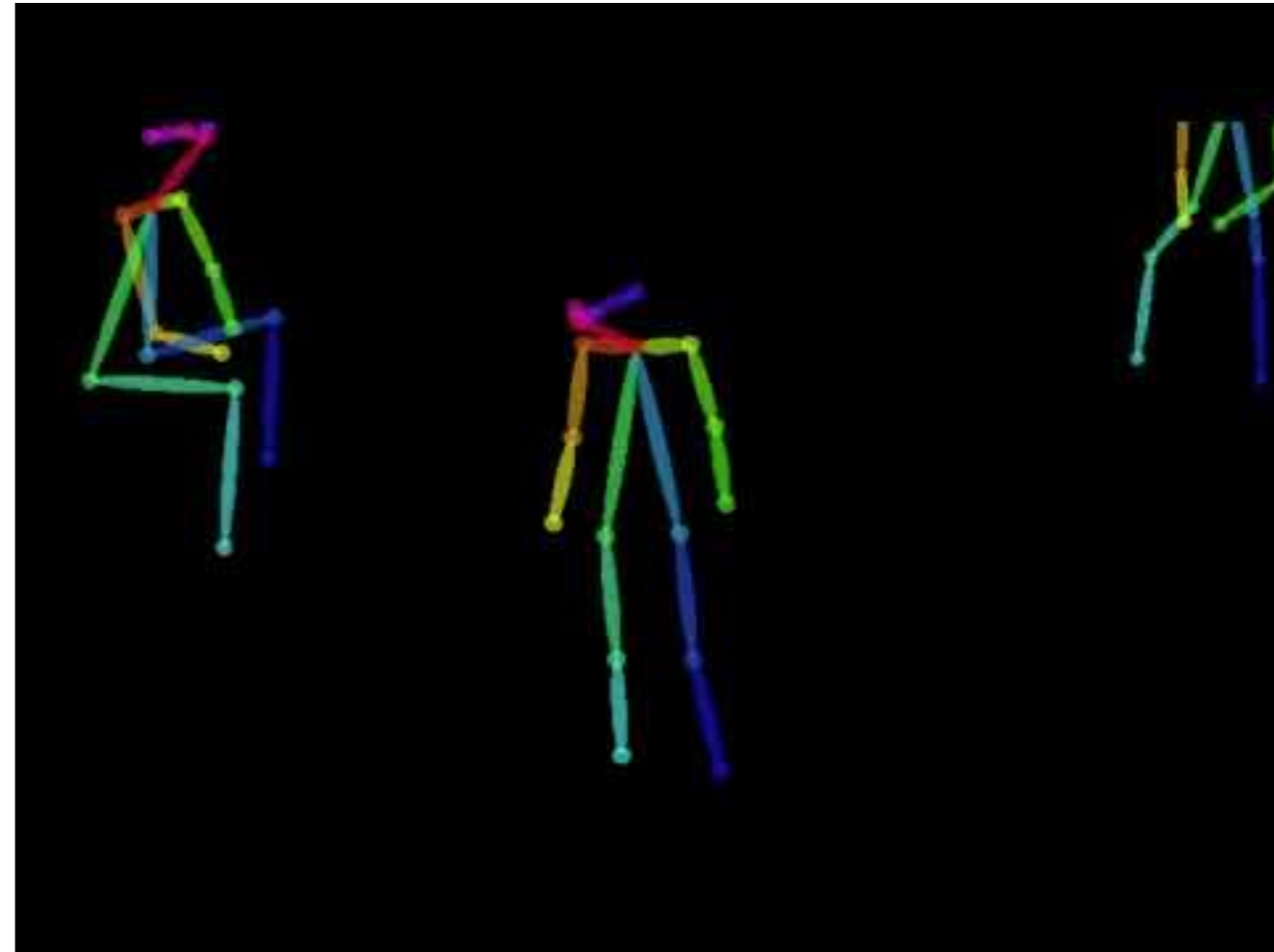
C

Research approach

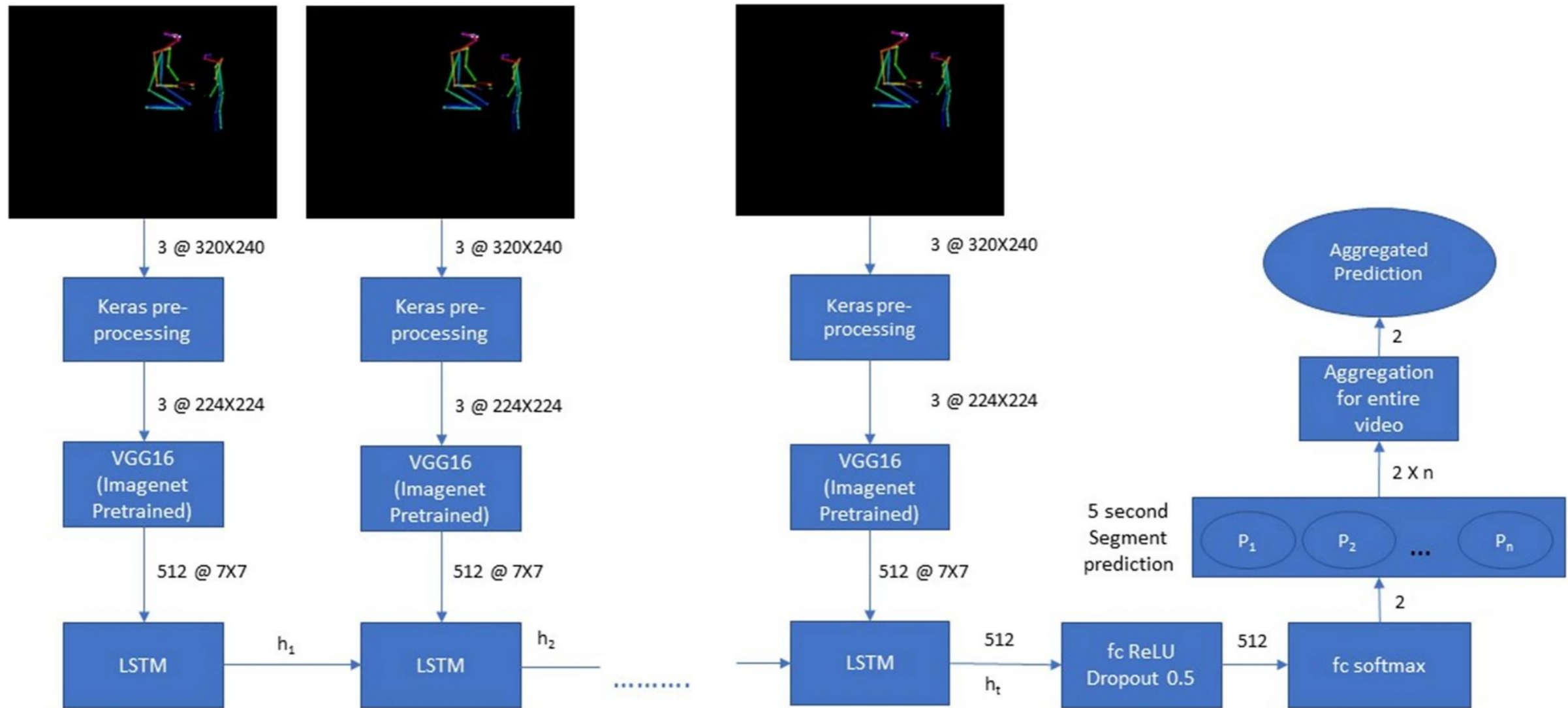
typically developing child (TD)



child with autistic spectrum disorder (ASD)



Research approach



Kojovic, N., Natraj, S., Mohanty, S.P. *et al.* Using 2D video-based pose estimation for automated prediction of autism spectrum disorders in young children. *Sci Rep* 11, 15069 (2021). <https://doi.org/10.1038/s41598-021-94378-z>

Next steps

- SNSF Sinergia grant :
 - starting in November 2021 (4 years)
 - PhD and postdoctoral positions are opening at UNIGE, IDIAP and SUPSI



In collaboration with :

- Prof. Marie Schaer, UNIGE/FacMed
- MER. Jean-Marc Odobez, IDIAP
- Dr. Michela Papandrea, SUPSI
- Mohanty Sharada, AI Crowd Research
- Jean-Philippe Barras, Ouréka

Computational diplomacy

- predict probability of negotiation outcomes from capturing social scenes
- enhance social interactions for better negotiation outcomes
- preserve anonymity (no image, no voice used)
- help diplomats make best use of their time in Geneva (good for carbon emissions and credibility)



How AI research in autistic youths may inspire computational diplomacy

report on the future
of an interdisciplinary
data science research journey

Thomas Maillart, PhD
Geneva Tsinghua Initiative
Geneva School of Economics and Management
Centre Universitaire Informatique



**UNIVERSITÉ
DE GENÈVE**

GENEVA SCHOOL OF ECONOMICS
AND MANAGEMENT