IM2 Phase III
IP3: Social Signal Processing

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IM2 Summer School,
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Outline

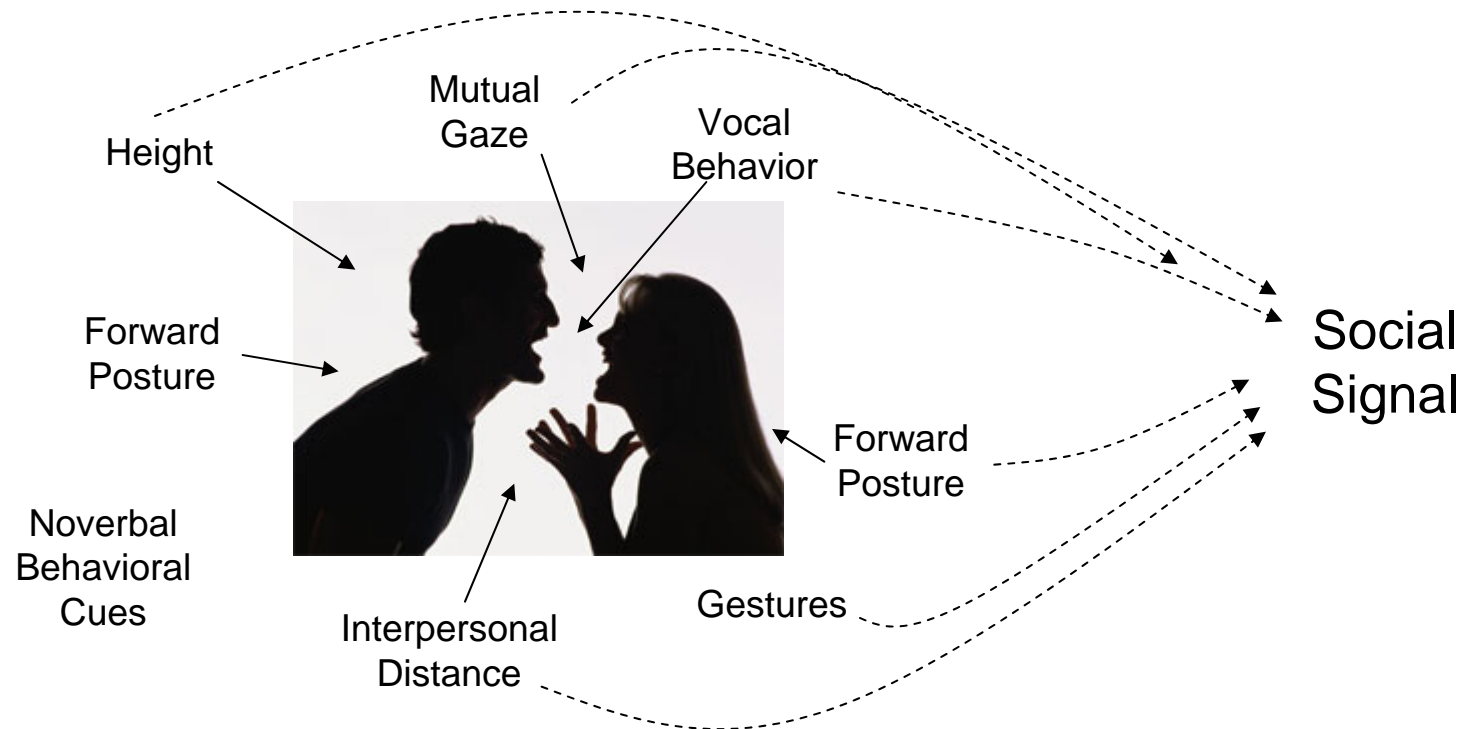- ## Part I - What is Social Signal Processing?
  - – Nonverbal behavioural cues and social behaviour
  - – Machine analysis of social behaviour

- ## Part II - Integration in Existing Research
  - – Integration in IM2
  - – Integration at national and international level

- ## Part III - Work Plans
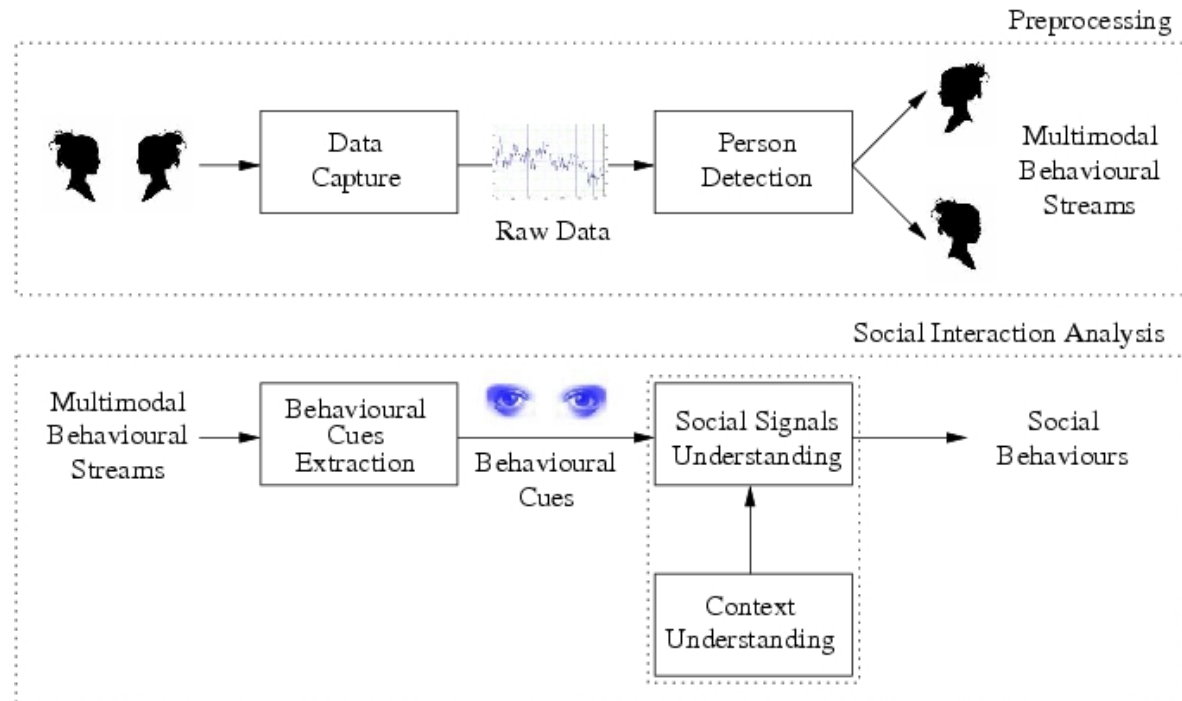 - – The people
  - – Research tracks

- ## Conclusions.

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Part I

- ## What is Social Signal Processing?

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Social Signals and Social Behaviour

Mutual Gaze

Vocal Behavior

Height

Forward Posture

Forward Posture

Noverbal Behavioral Cues

Interpersonal Distance

Gestures

Social Signal

Our attention focuses on words, but we are immersed in a Rich non-verbal world influencing not only the meaning of words, but also our perception of the social context.
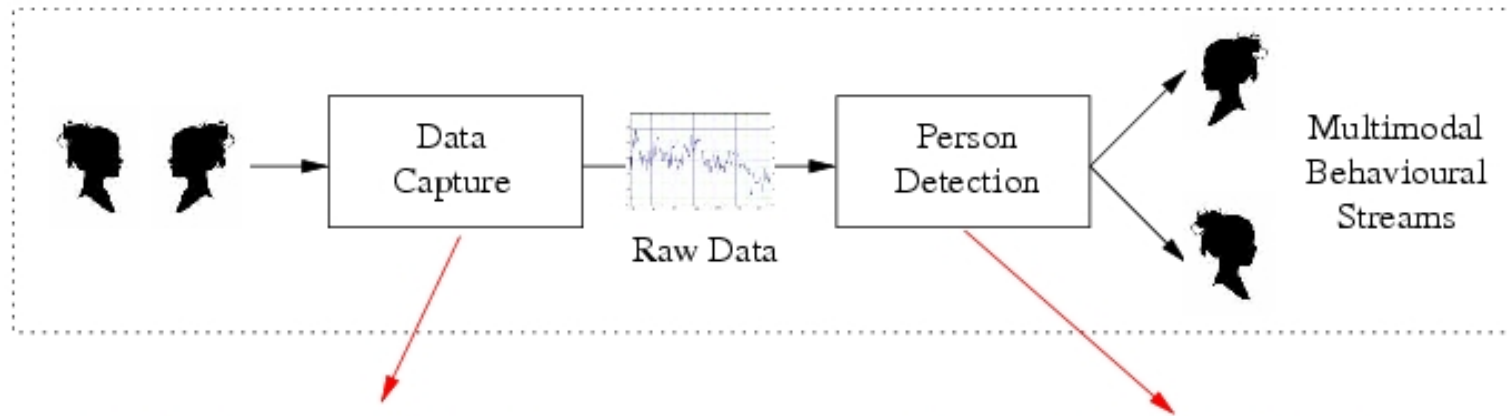
Social Signal Processing

A.Vinciarelli, M.Pantic, H.Bourlard, A.Pentland, "***Social Signal Processing: State-of-the-Art and Future Perspectives of an Emerging Domain***", Proceedings of ACM International Conference on Multimedia, pp.1061-1070, 2008.

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Part II

- Integration in Existing Research

Building upon Previous IM2 Results ...

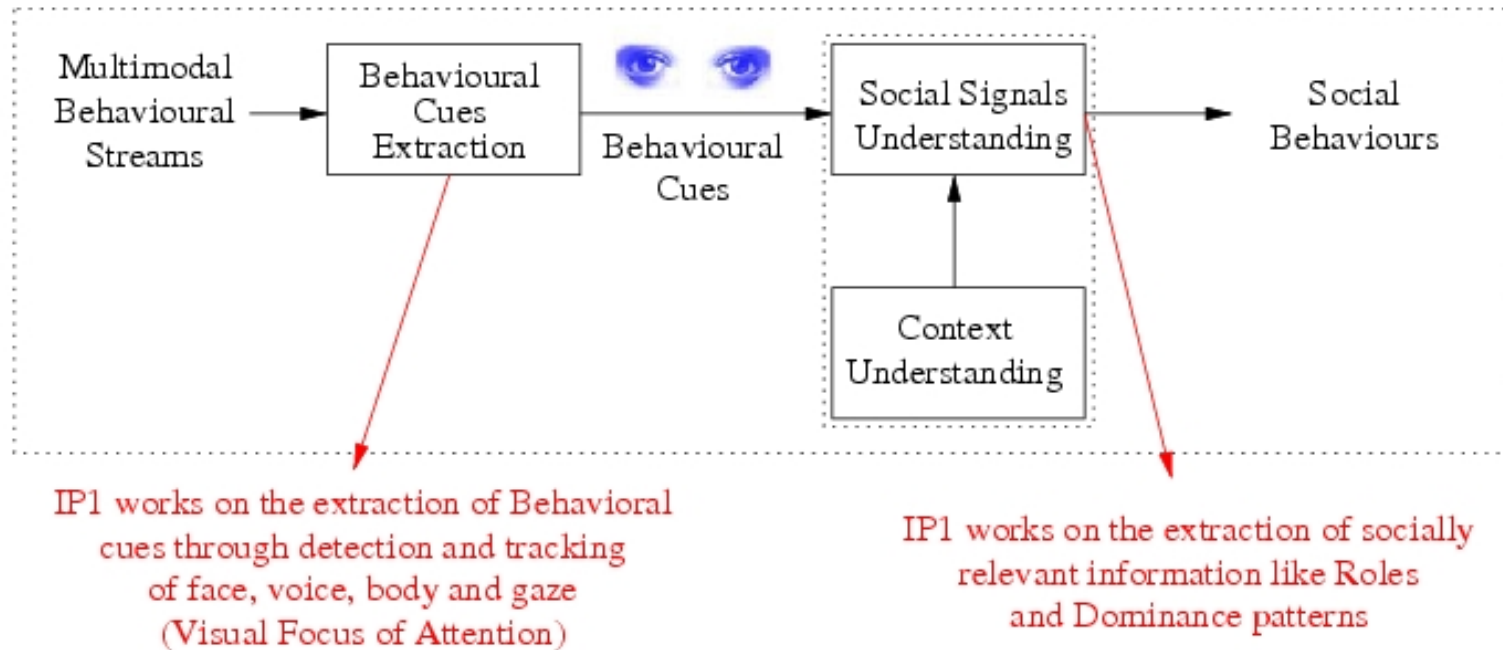Data Capture → Raw Data → Person Detection → Multimodal Behavioural Streams

IM2 has pioneered the development of infrastructures for the capture of face–to–face social interactions: IP3.SSP builds upon the resulting expertise

Basic technologies for the detection of people in audio and video streams have been one of the main subjects in IM2: IP3.SSP builds upon the resulting expertise

IP3.SSP builds upon the unique expertise accumulated in the previous phases of IM2 to capture, store and preprocess social interaction data.

... Integrating with Future IM2 Research

Multimodal Behavioural Streams → Behavioural Cues Extraction → Behavioural Cues → Social Signals Understanding → Social Behaviours

Context Understanding

IP1 works on the extraction of Behavioral cues through detection and tracking of face, voice, body and gaze (Visual Focus of Attention)

IP1 works on the extraction of socially relevant information like Roles and Dominance patterns

IP3.SSP focuses on Social Signals Understanding and uses the work in IP1.IMP as a low level processing, while providing feedback on higher level social phenomena.
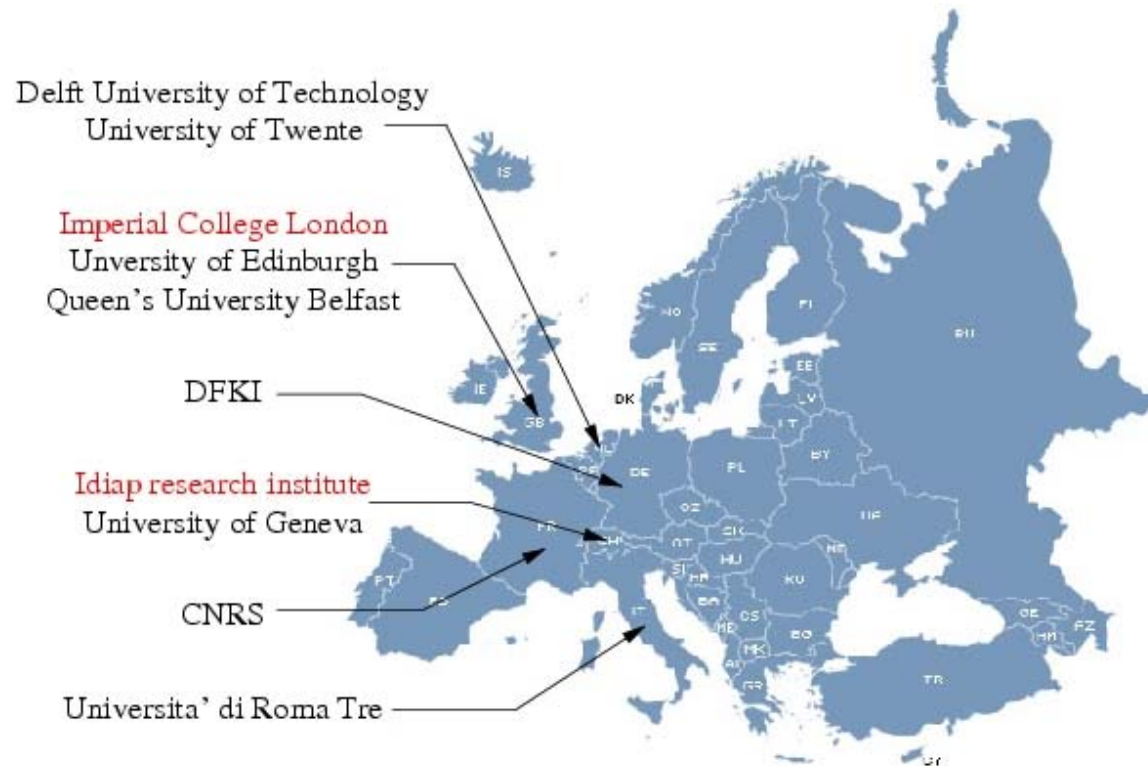
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A National Context

The Collaboration between Affective Sciences and IM2 has resulted into
Several National and international projects (SSPNet, CCPP, etc.)
A cross-disciplinary team including members of both NCCRs will be
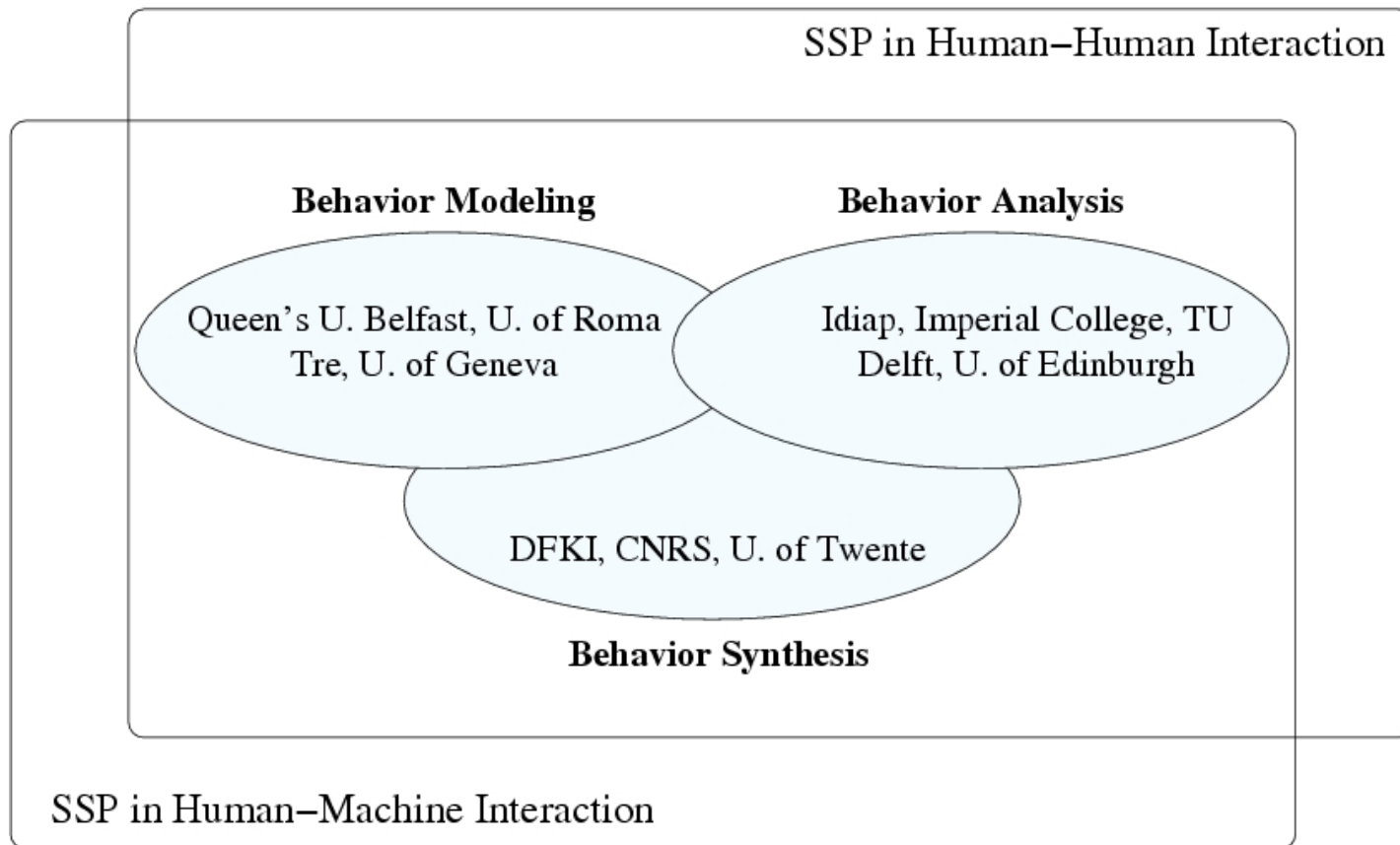established for IP3 as well

A European Context: SSPNet (I)

Delft University of Technology
University of Twente

Imperial College London
Unversity of Edinburgh
Queen's University Belfast

DFKI

Idiap research institute
University of Geneva

CNRS

Universita' di Roma Tre

A.Vinciarelli, IP3.SSP Head, is the Principal Investigator of SSPNet (Social Signal Processing Network), a European Network of Excellence aimed at Building an SSP research community

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A European Context: SSPNet (II)

SSPNet provides data, tools, international visibility, opportunity for higher impact

A European Context: Petamedia

- Petamedia revolves around peer-to-peer systems for the exchange of data and includes analysis of human behavior as a source of tags.

- Through the participation of F.Dufaux, Deputy Head of IP3.SSP, Petamedia offers the opportunity of testing IP3.SSP approaches in domains different, but still relevant, to IM2.

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Part III

- Work Plans

The People

The collaboration will involve the groups of Prof. Luc Van Gool (ETHZ) and Dr Alessandro Vinciarelli (Idiap Research Institute).

- Prof. Vittorio Ferrari (ETHZ) will join the collaboration and will work for the first time in IM2, a chance to include alternative expertise.

- Both ETHZ and Idiap commit to send their students at least three months per year at the other site of the collaboration: the goal is a truly collaborative work.

Track 1: Effectiveness of Delivery

IP3.SSP will investigate the effect of body gestures and vocal behavior on the assessment of oral presentations, possibly providing feedback aimed at higher impact on audience.

Track 2: Detection of Engagement

Congruent postures

Non-congruent postures

IP3.SSP will investigate the role of vocal behavior and postures in conveying information about the engagement in meetings.

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Conclusions

- IP3.SSP investigates a domain that, while in its pioneering stage, has attracted attention and funding around the world.

- IP3.SSP builds upon previous IM2 work and integrates in future IM2 activities, but brings substantial new elements in the project.

- IP3.SSP integrates major European SSP efforts, an opportunity for high visibility and impact.

- IP3.SSP points on the exchange of students as a mean to tighten collaboration between partners.

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Thank you for your attention!