



**UNSW**  
SYDNEY



## Speech Signal Processing

**Inferring emotional and mental state from speech and behavioural signals—by automatically detecting speaker, language and pronunciation—to enhance security via speech analysis.**

### Competitive advantage

Expertise in automatic inference of emotion, distress and mental state from speech and other biometrics, as well as:

- Voice biometrics and anti-spoofing countermeasures
- Automatic identification of language and detection of pronunciation
- Behavioural and biomedical signal processing

### Impact

- More efficient and effective security and surveillance
- Understanding and maximising human performance in high-stress environments
- This research has been translated into smartphone apps that can monitor mental states, smart health monitoring and interventions, automated speech therapy and second language learning, and live analysis of web-based remote video consultations

### Successful applications

- Joint modelling and recognition of linguistic and paralinguistic speech information
- Affective sensing technology for the detection and monitoring of depression and melancholia
- Automatic task analysis for wearable computing
- Investigating Bayesian frameworks for paralinguistic classification
- Automatic speech-based assessment of mental state via mobile device

### Capabilities and facilities

- High performance computing capabilities, including a large library of c

### More Information

Professor Julien Epps

School of Electrical Engineering and Telecommunications

T: +61 (0) 2 9385 6579

E: [j.epps@unsw.edu.au](mailto:j.epps@unsw.edu.au)

UNSW Knowledge Exchange

[knowledge.exchange@unsw.edu.au](mailto:knowledge.exchange@unsw.edu.au)

[www.capabilities.unsw.edu.au](http://www.capabilities.unsw.edu.au)

+61(2) 9385 5008