

## Participating Disciplines

HCSNet brings together researchers from a diversity of disciplines, driven by the belief that there is much to be gained by juxtaposing ideas from different perspectives. HCSNet's membership is drawn from the following areas:

### Psychology:

Psycholinguistics; perception; cognitive psychology; cognitive neuropsychology; cognitive science; psychoacoustics; developmental psychology; auditory physiology; statistics; music perception and cognition; perception and action

### Computing and Engineering:

Natural language processing and language technology; human-computer interaction; information retrieval; speech technology; data mining; computer-assisted language learning; affective computing; signal processing

### Linguistics:

Formal syntax; morphology; formal semantics; phonetics and phonology; conversational and discourse analysis; speech science; sign language

### Arts, Social Sciences and Performing Arts:

Music; music technology; philosophy of language; sociolinguistics and anthropological linguistics; theatre and gesture studies; digital media

## Participating Institutions

HCSNet is supported by:

Macquarie University  
University of Western Sydney  
Australian National University  
CSIRO  
Queensland University of Technology  
RMIT University  
University of Canberra  
University of Melbourne  
University of New England  
University of New South Wales  
University of Queensland  
University of Sydney

### Contact Information

To find out more about HCSNet, visit our website at [www.hcsnet.edu.au](http://www.hcsnet.edu.au).

The Network is managed by the HCSNet Executive Committee:

Robert Dale,  
HCSNet Convenor, Macquarie University


Denis Burnham,  
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Australian Government  
Australian Research Council



**HCSNet  
brings together  
researchers in language,  
speech and sonics to address  
challenges in human communication  
science and technology**

[www.hcsnet.edu.au](http://www.hcsnet.edu.au)

## What is HCSNet?

HCSNet is the Human Communication Science Network, a 5-year program funded by the Australian Research Council. Our aim is to facilitate interdisciplinary research in human communication science by connecting leading researchers in language, speech and sonics, and to deliver the new insights needed to solve long-standing problems in human communication.

## Programs

To achieve these goals, we provide funding via various special programs, with particular emphasis on our *priority research areas*, all targeted at increasing interaction and interdisciplinarity.

**Workshops** HCSNet provides awards of up to A\$20k for the organisation of workshops that bring together researchers to advance interdisciplinary thinking.

Recent workshop topics include:

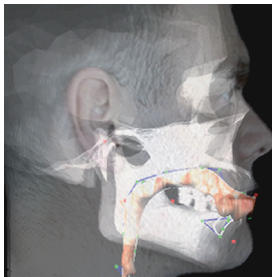
- Multimodal User Interaction
- Conceptualising Communication
- Interactive Systems in the Performing Arts
- Speech Processing and Auditory Perception under Adverse Conditions
- Computational Modelling of Language and Communication Disorders
- Music as Human Communication

### International Visiting Speakers

HCSNet provides funding to bring distinguished international speakers from overseas to present seminars at institutions in Australia.

**Seminars** HCSNet provides funding for Australian researchers to present papers to interdisciplinary audiences at institutions across Australia.

**Special Programs** At the HCSNet Executive's discretion, funding may be available for one-off activities that contribute to the Network's goals.



## SummerFest

SummerFest is HCSNet's annual flagship event, held in November or December each year. Comprising a summer school, our unique speed papers session, and a number of specialised workshops, SummerFest attracts over 200 participants who come to learn and share their knowledge.



## Priority Research Areas

HCSNet activities encompass a wide range of research issues, but we have a particular interest in five specific areas of research:

### Human and Machine Speech

Can the way in which humans learn to perceive speech assist in developing Automatic Speech Recognition (ASR) systems? Do other human behaviours such as emotional communication and the production and perception of music contribute to the efficient learning of language by humans? Can studies with ASR systems throw light on how human speech perception develops? Can input from evolutionary psychology, music cognition, communication disorders, philosophy, linguistics or related areas assist in solving these problems?

### Effective Interfaces

As our technology gets more complex, so do the interfaces we use to communicate with that technology. What is it that makes a human-computer interface, particularly one that uses speech, effective? Can we achieve effectiveness by making these interfaces more 'natural', and if so, how natural should such interfaces be? What can we learn from human-human communication?

### Next-Generation Search Technology

Existing search engines use essentially very simple techniques that provide usable results most of the time, overcoming the problem of information quantity. But the *quality* of search technology lags far behind human information processing: how we can improve search engine technology by integrating more knowledge about the perception, processing and understanding of language?

## Human Communication Disorders

HCSNet brings together expertise in speech pathology, language and learning disorders and disabilities, acquired neurological problems, music cognition, hearing and visual impairment, rehabilitation and training, prosthetics, schizophrenia on the one hand; and social psychology, developmental psychology, linguistics, speech and language technology, speech science, music perception and production, audition on the other. Can these juxtapositions shed light on the nature of communication disorders?

## Human and Machine Perception and Action

The way that humans attend to particular information, and use it to guide and direct action, is not only of theoretical and practical interest for studies on human behaviour and human movement, but also for human studies of when such behaviours go awry, and studies of machine-based learning and robotics. To solve these problems an integrated interdisciplinary approach is required, integrating input from visual and auditory perception, motor control, motor learning, cognitive neuroscience, psycholinguistics, sign language, gesture analysis, non-verbal communication, computer science and signal processing.

## Getting Involved

Getting involved in HCSNet is easy: visit [www.hcsnet.edu.au](http://www.hcsnet.edu.au) to sign up as a member of the network. You'll be added to our online profile database, and automatically receive our weekly electronic newsletter, HCSNet Update, which will keep you informed of HCSNet activities, and events in the range of HCSNet disciplines. Australian-based HCSNet members can apply for funding under our various programs.

