

AES York Student Section – Past Events

Guest Seminar Series

Rachel Van Besouw, Institute of Sound & Vibration, University of Southampton
Auditory Sensation Through Electrical Stimulation – A review of cochlear implant technology
Friday 29th January

Many people with severe or profound sensorineural deafness receive little or no benefit from conventional hearing aids. For these individuals, a cochlear implant may provide useful speech perception and awareness of environmental sounds. A cochlear implant is a surgically implanted device that bypasses the outer and middle ear, directly stimulating auditory nerve fibres in the inner ear to provide a sensation of hearing. Attempts at direct electrical stimulation of auditory nerve fibres in patients began in the 1950s and by the 1970s experimental research had commenced using single and multichannel cochlear implant prototypes. Since then, cochlear implants have rapidly evolved and there are now around 200,000 children and adults benefiting from this technology worldwide.

Devices currently offered by manufacturers share the same fundamental components, but differ in microphone array type, coding strategy and electrode array design and configuration. One of the main signal processing challenges to be addressed by all current devices is the reproduction of auditory nerve stimulation patterns that accurately mimic the patterns which occur in a normally functioning cochlea. Although cochlear implants are reasonably successful in restoring speech perception in quiet environments, they provide limited temporal fine structure information important for pitch perception, sound source separation and spatial hearing.

This seminar provided an overview of cochlear implant technology, the coding strategies employed, the outcomes of cochlear implantation, the limitations of current devices including issues pertaining to music perception, and future directions for cochlear implant research and development.



PRESENTS

AUDITORY SENSATION THROUGH ELECTRICAL STIMULATION

A REVIEW OF COCHLEAR IMPLANT TECHNOLOGY

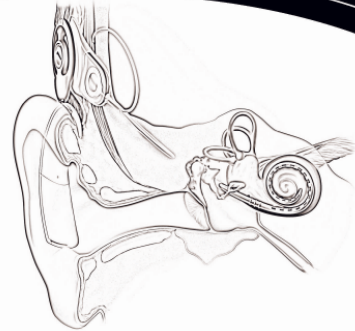
RACHEL VAN BESOUW

INSTITUTE OF SOUND & VIBRATION, UNIVERSITY OF SOUTHAMPTON

FRIDAY 29 JANUARY

P/T/006 13.15

This seminar will provide an overview of cochlear implant technology, the coding strategies employed, the outcomes of cochlear implantation, the limitations of current devices including issues pertaining to music perception, and future directions for cochlear implant research and development.



All welcome!

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Outcome

19 persons were in attendance, 7 of whom were academic staff. Photographs of the event follow:

