

PRESENTATION ABSTRACT: *For several decades, cochlear implants have allowed sufferers of sensorineural deafness to participate as part of the hearing world. More recently, the blind community have captured their first glimpses of what the future may deliver in sensory bionics for the treatment of degenerative disorders of the retina. This presentation will review the state of the art in visual prostheses or ‘bionic eyes’, and present the research challenges and opportunities that stand between where we are today and where we strive to be when we can ultimately restore perfect vision to the blind.*



Gregg J. Suaning is Professor of Biomedical Engineering with the Graduate School of Biomedical Engineering at the University of New South Wales, and will soon become a Professor of Biomedical Engineering with the University of Sydney. He has over a quarter century of experience in implantable neuroprosthesis in both industry and academia. He received his Bachelor and Master of Science degrees from the California State University in 1986 and 1988 respectively. His Ph.D. in visual prosthesis from the University of New South Wales (UNSW), Sydney, Australia was awarded in 2003. Suaning is a prolific inventor with several patents in the medical device field – primarily in sensory bionics. He has authored over 150 book chapters, journal manuscripts and full-paper, refereed conference proceedings, and has raised more than \$56M in competitive research funding during his academic career. He holds an Honorary Professorship with the Sydney Medical School at the University of Sydney and has been a Visiting Scientist at the University of Freiburg, Germany and Aalborg University, Denmark. He is a recipient of the Bartimaeus Award from the Detroit Institute of Ophthalmology in recognition for his service to the blind community and in recognition of his collegiality in the advancement of the field of visual neuroprosthesis. Suaning is also a Senior Member of Institute of Electrical and Electronics Engineers (IEEE) and an Associate Editor of the Proceedings of the IEEE’s Engineering in Medicine and Biology Society (EMBS). He serves on the organising committees of the world’s largest biomedical engineering conferences to be held in 2017 and 2018. He was instrumental in securing this same conference for Sydney in 2023. Suaning’s research includes robust collaborative research with industry to bring about the next generation of cochlear neuroprostheses for the deaf, and in leading-edge research to bring about neuroprosthetic therapies to restore vision to the blind.