



### THE FORMATION OF A NEUROPROSTHETIC COMPANY

The “Utah array” is a penetrating array of 100 electrodes up to 1.5 mm long, designed to be implanted in the cortex. It was developed in the early 1990+s by Professor Richard Normann and his research team in the Department of Bioengineering at the University of Utah. The primary motivation was to provide the technology basis for a range of prostheses—especially a vision prosthesis—using the array as multichannel electrical interface to the central and peripheral nervous system.

In 1995, the State of Utah funded the formation of the Center for Neural Interfaces at the University of Utah under the direction of Prof. Normann. The goal for the Center was to bridge the gap between university research and commercial applications of the research. Brian Hatt Ph.D. was the consultant working with the Center to develop a commercialization strategy. It was clear that it would take at least a decade to bring a clinical prosthesis to market, but it was also apparent that there was an immediate market in the neuroscience research community for the penetrating microarrays, connectors, and data acquisition systems. Addressing this research market would have significant strategic advantages: feedback from customers about new applications, improvements, and criticisms; development of manufacturing processes with a focus on costs, yields and quality; creation of full manufacturing documentation that will be needed for FDA device approval; development of *products* rather than experimental laboratory devices; and provide a vehicle for raising investment in prosthetic development and commercialization.

Prof. Normann and Dr. Hatt formed Bionic Technologies in 1996, initially to ‘productize’ and market the Center technologies. In the past five years, the company has grown from a virtual company in Brian Hatt’s basement to a real company occupying a 3,000 sq. ft. suite of laboratories in the University of Utah Research Park, employing some 20 staff.

Bionic Technologies markets a range of products worldwide, exhibiting at the annual meetings of the Society for Neuroscience and the Association for Research in Vision and Ophthalmology. It also has an extensive program on product and technology development: manufacturing processes; new array geometries, structures and architectures; high-channel-count chronic and acute connector systems; array inserters; VLSI-based headstages and implantable MUX chips; and multichannel data acquisition systems.

The company, run by Brian Hatt, has a close and synergistic relationship with the Center for Neural Interfaces, directed by Dick Normann at the University of Utah. Bionic Technologies also collaborates with several other neuroscience laboratories and its strategy is to augment its own development program with technologies licensed from other institutions where appropriate. The main goal for the company is to bring the technology to market as prostheses.