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Intellectual Property

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Neural Enabled Prosthesis-Communication Interface for Sensory Stimulation

AzTE Case # M06-139 and M09-109

Invention Description

Despite recent progress in prosthetic science, 38% of artificial limb users ultimately reject their limb. This is mostly due to the quality of sensation and control. There are more than 1.7 million people with limb loss in the US with more than 185,000 new amputations each year. The development of a more responsive prosthesis communication interface is needed.

Researchers at Arizona State University have developed a communication interface circuit capable of connecting the sensor outputs from a prosthetic limb with a stimulator. They have also designed an intrafascicular neural electrode comprising a MEMS stem structure for measuring and/or recording activity from the peripheral nervous system. The combination of recording signals and providing relevant stimuli provides enhanced communication and control of the prosthetic limb.

Potential Applications

- Neuroprosthetic device
- Rehabilitation device
- Virtual reality technology

Benefits and Advantages

- Processes signals from more than one sensor
- Records distributed neural activity
- Clamping mechanism ensures stable and consistent recording
- Provides stimulation to the nervous system