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SEARCH

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Selected links:
- Department of Biomedical Engineering
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- Neuromechanics IGERT >>
- PubMed Citations >>

Research Summary

Major research interests are in the area of neuromechanics, particularly the restoration of movement by neuroprostheses employing functional neuromuscular stimulation. This research emphasizes the role of feedback and muscle and limb mechanical properties in the execution and regulation of movements. Current research projects include the control of wrist flexion/extension and elbow extension in patients with spinal cord injuries. Other projects involve the clinical implementation and evaluation of upper limb neuroprostheses, and the development of muscle models suitable for use in simulations with neuronal models.

Recent Publications

- Giuffrida JP and Crago PE, Functional restoration of elbow extension after spinal cord injury using a neural network based synergistic FES controller, *IEEE Trans. Neural Systs. and Rehab. Eng.*, 13:147-152, 2005.

- Swift MJ, Crago PE, Grill WM. Applied electric fields accelerate the diffusion rate and increase the diffusion distance of DiI in fixed tissue, *J. Neurosci. Meth.*, 141:155-63, 2005

- Sutton GP, Mangan EV, Neustadter DM, Beer RD, Crago PE, Chiel HJ, Neural control exploits changing mechanical advantage and context dependence to generate different feeding responses in *Aplysia*. Biological Cybernetics 91, 333-345, 2004.

- Sutton GP, Macknin JB, Gartman SS, Sunny GP, Beer RD, Crago PE, Chiel HJ, Passive properties within the feeding apparatus of *Aplysia* aid retraction in biting but not in swallowing. *Journal of Comparative Physiology A*, 190:501-514, 2004.

- Perreault EJ, Kirsch RF, and Crago PE, Multijoint dynamics and postural stability of the human arm, *Exp Brain Res.*, 157:507-1, 2004.

- Lujan JL and Crago PE, Computer-based test-bed for clinical assessment of neuroprosthesis controllers using artificial neural networks. *Med Biol Eng Comput*, 42:754-61, 2004.

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