Project Title: Neurocorrelagrahic Device

Sponsor(s) Dycor MFG. Inc.

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Problem statement, Area of investigation, Un-met clinical need, etc.

Assessing clinical outcomes for extra-corporal orthotic and prosthetic intervention is fairly straight forward: just ask. Of course, the resulting subjective interpretation (ratings) might not fully capture or accurately reflect the underlining biological issues involved in physical rehabilitation of individuals with desensitized or missing limbs. Further, such subjective inquisition does not represent “hard” science, and the results of this method of inquiry will doubtlessly be less than wholly convincing to third party payers. A reproducible, consistent and (most importantly) predictable method for scientific testing or proving that any one intervention modality is preferable to another needs to be developed.

Project field:
A) Software X
B) Device development X
C) Biochemical process
D) Theoretical analysis X
E) *In vivo or in vitro* experiments
F) Microfabrication or nanotechnology
G) Other- describe

H) Is this a Team project (Yes)

What background should student have: ME, CBE, ECE, ?

Please indicate the relevant technological field(s) in order to help the student understand where they will develop expertise.

Bioengineering, biomechanical engineering, neuroscience, neuropsychology, neuroengineering, mechanical and electrical engineering and computer science.

Criteria for success or key milestones
The proposed neurocorrelagrophic device would have to accurately measure within + or - 5 ms. the user’s ability to anticipate predetermined kinetic and kinematic characteristics of a functional substitution device (extra-corporal O&P device). I would help the investigators determine exactly which characteristic needs to be monitored, and hopefully, determine the clinical significance of the measured lapse duration.

Other relevant materials or resources needed for the project.

Mark Schultz PhD (computer science) – may be helpful in securing DARPR funding, and of course, myself.