

BIOGRAPHICAL SKETCH

Provide the following information for the key personnel and other significant contributors in the order listed on Form Page 2.
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| | | | |
|---|-----------------------------------|---------|------------------------|
| NAME Kevin L. Kilgore | POSITION TITLE Program Manager | | |
| eRA COMMONS USER NAME kkilgore | | | |
| EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i> | | | |
| INSTITUTION AND LOCATION | DEGREE <i>(if applicable)</i> | YEAR(s) | FIELD OF STUDY |
| University of Iowa, Iowa City, IA | B.S. | 1983 | Biomedical Engineering |
| Case Western Reserve University, Cleveland, OH | M.S. | 1987 | Biomedical Engineering |
| Case Western Reserve University, Cleveland, OH | Ph.D. | 1991 | Biomedical Engineering |

A. Positions and Honors.

2005-Pres Clinical Instructor, Dept. Orthopaedics, Case Western Reserve University School of Medicine
 1998-Pres Clinical Research Director, Cleveland Veterans Administration Functional Electrical Stimulation Center, Cleveland, Ohio
 1994-Pres Program Manager, Dept. Orthopaedics
 MetroHealth Medical Center, Cleveland, Ohio
 1992-Pres Adjunct Assistant Professor, Dept. Biomedical Engineering,
 Case Western Reserve University, Cleveland, Ohio
 1992-1994 Clinical Research Director, Cleveland VA Functional Electrical Stimulation Center, Cleveland, Ohio
 1991-1992 Research Associate, Case Western Reserve University, Cleveland, Ohio
 1988-1991 Biomedical Engineer, Medical Research, Cleveland Veterans Administration Medical Center, Cleveland, Ohio
 1983-1991 Graduate Research Assistant, Case Western Reserve University, Cleveland, Ohio

B. Selected peer-reviewed publications

Bhadra N, Bhadra N, **Kilgore KL**, Gustafson KJ, High frequency electrical conduction block of the pudendal nerve, J. Neural Engineering, 3(2):180-7, 2006.
 Bhadra N, **Kilgore KL**, High-frequency electrical conduction block of mammalian peripheral motor nerve, Muscle and Nerve, 32, 782-790, 2005.
 Bryden AM, **Kilgore KL**, Kirsch RF, Memberg WD, Peckham PH, Keith MW, An implanted neuroprosthesis for high tetraplegia, Top Spinal Cord Inj Rehabil, 10(3):38-52, 2005.
Kilgore KL, Bhadra N, Nerve conduction block utilizing high-frequency alternating current, Medical and Biological Engineering and Computing, 42, 394-406, 2004.
 Bhadra N, **Kilgore KL**, Direct current electrical conduction block of peripheral nerve, IEEE Transactions on Neural Systems and Rehabilitation Engineering, 12, 313-324, 2004.
 Bryden AM, **Kilgore KL**, Yu D, Lind BB. Triceps denervation as a predictor of elbow flexion contractures in C5 and C6 tetraplegia, Arch Phys Med Rehabil, 85:1880-1885, 2004.
 Knutson JS, Hoyen HA, **Kilgore KL**, Peckham PH: Simulated neuroprosthesis state activation and hand position control using myoelectric signals from wrist muscles. J. Rehab Research and Development, 41(3B):461-472, 2004.

- Kilgore KL**, Peckham PH, Keith MW, Montague FW, Hart RL, Gazdik MM, Bryden AM, Snyder SA, Stage TG. The durability of implanted electrodes and leads in upper extremity neuroprostheses. J. Rehab Research and Development 40(6):457-468, 2003.
- Murray WM, Bryden AM, **Kilgore KL**, Keith MW, The influence of elbow position on the range of motion of the wrist following transfer of the brachioradialis to the extensor carpi radialis brevis tendon, J. Bone Joint Surgery, 84-A:2203-2210, 2002
- Bhadra N, Peckham PH, Keith MW, **Kilgore KL**, Montague FW, Gazdik MM, Stage TG, Implementation of an Implantable Joint Angle Transducer, J. Rehab Research and Development, 39(3):411-422, 2002.
- Peckham PH, **Kilgore KL**, Keith MW, Bryden AM, Bhadra N, Montague FW, An Advanced Neuroprosthesis for Restoration of Hand and Upper Arm Control Employing an Implantable Controller, J. Hand Surgery, 27A(2):265-276, 2002.
- Peckham PH, Keith MW, **Kilgore KL**, Grill JH, Wuolle KS, Thrope GB, Gorman P, Hobby J, Mulcahey MJ, Carroll S, Hentz V, Wiegner A., Efficacy of an Implanted Neuroprosthesis for Restoring Hand Grasp in Tetraplegia: A Multicenter Study, Arch. Physical Medicine and Rehabilitation, 82:1380-8, 2001.
- Kilgore KL**, Scherer M, Bobblitt R, Dettloff J, Dombrowski DM, Godbold N, Jatich JW, Morris R, Penko JS, Schremp ES, Cash LA, Neuroprosthesis consumers' forum: consumer priorities for research directions, J. Rehabilitation Research and Development, 38:655-660, 2001
- Bhadra, N., **Kilgore, KL.** & Peckham, PH. Implanted stimulators for restoration of function in spinal cord injury. Medical Engineering and Physics 23, 19-28, 2001.
- Knutson JS, **Kilgore KL**, Mansour JM, Crago PE, Intrinsic and Extrinsic Contributions to the Passive Moment at the Metacarpophalangeal Joint, J. Biomechanics, 33(12):1675-1681, 2000.
- Creasey G, **Kilgore KL**, Brown-Triolo DL, Dahlberg JE, Peckham PH, Keith MW, Reduction of Costs of Disability Using Neuroprostheses, Assistive Technology, 12:67-75, 2000.
- Chae J, **Kilgore KL**, Triolo RJ, Creasey G: Functional Neuromuscular Stimulation in Spinal cord Injury, in Physical Medicine and Rehabilitation Clinics of North America, 11(1):209-226, 2000.
- Lauer RT, Peckham PH, **Kilgore KL**, Heetderks WJ: Applications of Cortical Signals to Neuroprosthetic Control: A Critical Review. IEEE Trans. Rehab. Eng., 6:205-208, 2000.
- Peckham, P.H., Keith, M.W., **Kilgore, K.L.:** Restoration of Upper Extremity Function in Tetraplegia. Top Spinal Cord Inj Rehabil, 5:33-43, 1999.
- Lauer RT, **Kilgore KL**, Peckham PH, Bhadra N, Keith MW: The Function of the Finger Intrinsic Muscles in Response to Electrical Stimulation. IEEE Trans. Rehab. Eng., 7(1):19-26, 1999.
- Lauer RT, Peckham PH, **Kilgore KL:** EEG-based control of a hand grasp neuroprosthesis. NeuroReport, 10:1-5, 1999.
- Kilgore K.L.**, Lauer R.T., Peckham P.H.: A Transducer for the Measurement of Finger Joint Moments. IEEE Trans. Rehab Eng, 6(4):424-429, 1998.
- Hart RL, **Kilgore KL**, Peckham PH, A Comparison Between Control Methods for Implanted FES Hand-Grasp Systems, IEEE Trans Rehab Eng., 6:208-218, 1998.
- Scott T.R.D., Bhadra N., **Kilgore KL**, Peckham PH: The monitoring of tendon tension with an implantable intratendon probe and its use in the control of neuroprostheses. IEEE Trans. Rehabilitation Engineering, 5(2):233-235, 1997.
- Kilgore K.L.**, Peckham P.H., Keith M.W., Thrope G.B., Wuolle K.S., Bryden A.S., Hart R.L.: An implanted upper extremity neuroprosthesis: A five patient review. J B Joint Surg, 79A(4):533-541, 1997.
- Keith MW, **Kilgore KL**, Peckham PH, Wuolle KS, Creasey G, Lemay M: Tendon Transfers And Functional Electrical Stimulation for Reconstruction of Hand Function in Spinal Cord Injury. J Hand Surg 21a:89-99, 1996
- Kilgore K.L.**, Peckham P.H.: Grasp synthesis for upper-extremity FNS: Part 1 An automated method for synthesizing the stimulus map for upper extremity FNS. Med. & Biol. Eng. & Comput, 31:607-614, 1993.
- Kilgore K.L.**, Peckham P.H.: Grasp synthesis for upper-extremity FNS: Part 2 Evaluation of the influence of the electrode recruitment properties on FNS grasp output. Med. & Biol. Eng. and Computing, 31:615-622, 1993.

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI –PH Peckham)

Agency: FDA - FD-R-002389

Period: 10//03-9/30/06

The goal of this project is to evaluate the functional benefits provided by an implanted neuroprosthesis for individuals with C5/C6 spinal cord injury. The implanted neuroprosthesis consists of 12 stimulus channels and 2 myoelectric control channels. Six subjects are to be implemented and evaluated during the period of this proposal.

“Rehabilitation Engineering Platform Technology for Excellence”

VA Center C3819C (RJ Triolo PI)

Period: 1/1/05-12/31/09

Department of Veterans Affairs Rehabilitation Research and Development Service

The objective of this project is the development of advanced technology for application in the area of rehabilitation. Applications include prosthetics, neuroprosthetics and new materials for orthotics.

“Development of Networked Implantable Neuroprostheses”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – PH Peckham)

Agency: NIH-NIBIB – 1R01-EB-001740

Type: R01

Period: 3/25/2005 – 2/28/2006

The goal of this project is to develop a new design concept in implantable neuroprostheses that is based on a network of modules. The key feature of this design is that it can be configured for multiple applications using a small number of unique modules. The system is fully implanted with wireless programming and internal power supplied by a rechargeable battery.

“Implanted Myoelectric Control for Restoration of Hand Function in SCI”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – PH Peckham)

Agency: VA

Type: VA Merit Review

Period: 8/1/05 – 7/31/08

The goal of this project is to evaluate the functional benefits provided by an implanted neuroprosthesis for individuals with C4/C7 spinal cord injury. The implanted neuroprosthesis consists of 12 stimulus channels and 2 myoelectric control channels. Four subjects are to be implemented and evaluated during the period of this proposal.

RESEARCH PROJECTS COMPLETED IN LAST THREE YEARS:

“A Novel Waveform for Electrical Nerve Conduction Block”

Principal Investigator: Kevin L. Kilgore, Ph.D.

Agency: NIH – NS40553-01A1

Type: R01

Period 6/15/01 - 5/31/04

“Development of Networked Implantable Neuroprostheses”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – PH Peckham)

Agency: NIH-NINDS – 1R01NS41809-01

Type: R01

Period: 9/1/01-8/31/05

“FES Control of the Extremities in Spinal Cord Injury”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – PH Peckham)

Agency: Department of Veterans Affairs Rehabilitation Research and Development Service – B2725R

Type: Merit Review

Period: 3/1/02-2/28/05

“Multichannel Implantable System for Neural Control”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – PH Peckham)

Agency: NIH – NINDS – 2R01NS29549

Type: R01

Period: 4/1/99 – 3/31/04

“Restoration of Hand and Arm Function by Neuromuscular Stimulation”

Co-Principal Investigator: Kevin L. Kilgore, Ph.D. (PI – RF Kirsch)

Agency: NIH – NINDS – N01-NS-1-2333

Type: N01 – Contract

Period: 6/1/01 - 5/31/05