

# CURRICULUM VITAE AND BIBLIOGRAPHY

**DATE PREPARED:** June 25, 2012

**Name:** SUSAN E. FASOLI

**Office Address:** Center for Restorative & Regenerative Medicine  
Providence VA Medical Center  
830 Chalkstone Avenue  
Providence RI 02908

**Work Phone:** (401) 273-7100 ext. 6254      **Home Phone:** (508) 634-0072

**Work E-Mail:** [susan.fasoli@va.gov](mailto:susan.fasoli@va.gov)

## Education:

1980	Associate of Science, Occupational Therapy	Quinsigamond Community College
1988	Bachelor of Science, Natural Sciences	Worcester State College
1994	Master of Science, Occupational Therapy	Boston University
2000	Doctor of Science, Therapeutic Studies	Boston University

## Postdoctoral Training

2000-2005	Post-Doctoral Associate & Fellow Mechanical Engineering & Rehabilitation	Massachusetts Institute of Technology
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## Licensure and Certification:

1985	American Occupational Therapy Association	Registered Occupational Therapist OTR
1985	Commonwealth of Massachusetts	Licensed Occupational Therapist.

## Academic/Research Appointments:

1994-1996	Instructor	Worcester State College
1997-2000	Lab Instructor and Teaching Fellow	Sargent College, Boston University
2005-2006	Visiting Scholar- Mechanical Engineering	Massachusetts Institute of Technology
2005-2006	Lecturer & Course Facilitator	Sargent College, Boston University
2005-present	Instructor in Physical Medicine & Rehabilitation	Harvard Medical School
2011-present	Research Health Science Specialist	Center for Restorative & Regenerative Medicine, Providence VAMC
2012-present	Instructor in Neurology (Research)	Brown University

## Hospital Appointments:

2001-2005	Post Doctoral Associate	Spaulding Rehabilitation Hospital
2005-2009	Research Therapist	Spaulding Rehabilitation Hospital

**Committee Service:**

2002-2009	Stroke Rehabilitation and Recovery Committee	American Heart Association
2005-2008	Rehabilitation Taxonomy Committee, Co-Chair.	American Congress of Rehabilitation Medicine (ACRM)
2007-2010	Nominations Committee	American Congress of Rehabilitation Medicine (ACRM)
2008-present	Steering Committee	Classification & Measurement of Medical Rehabilitation Interventions Marcel Dijkers PI, NIDRR funded grant
2010-2012	Program Committee	2011 & 2012 ACRM/ASNR Annual Conference

**Professional Societies:**

1980-present	American Occupational Therapy Association
1980-present	Massachusetts Assn. of Occupational Therapy
2000-2006	World Federation of Occupational Therapy
2001-2005	American Heart Association – Stroke Council
2002-present	American Congress of Rehabilitation Medicine

**Grant Review Activities:**

2006	Assistive Technology (AT) Outcomes Research Program, Ad Hoc Member, NIDRR
2011	MRS – Musculoskeletal Rehabilitation Sciences Study Section, Ad Hoc Member, NIH

**Editorial Boards:**

2001-present	Ad Hoc Reviewer	IEEE Transactions on Neural Systems and Rehabilitation Engineering
2001-present	Ad Hoc Reviewer	NeuroRehabilitation and Neural Repair
2003-present	Member	BMC Neuroengineering and Rehabilitation
2003-present	Ad Hoc Reviewer	Archives of Physical Medicine & Rehabilitation
2003-present	Ad Hoc Reviewer	American Journal of Physical Medicine & Rehabilitation
2004-present	Ad Hoc Reviewer	Advances in Physiotherapy
2004-present	Ad Hoc Reviewer	Journal of Rehabilitation Research & Development

**Awards and Honors:**

2002	Cordelia Myers First-Time Writer's Award. American Occupational Therapy Association.
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**Report of Funded and Unfunded Projects****Funding Information:**

1996-2000	National Center for Medical Rehabilitation Research (NCMRR) of NICHD at NIH. Catherine Trombly P.I. Boston University. National Research Award Traineeship for doctoral training in occupational therapy/therapeutic studies.
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- 1999-2000 Dudley Allen Sargent Research Fund, Sargent College - Boston University.  
Susan E. Fasoli P.I.  
Title: The effect of instruction on motor control following cerebrovascular accident.
- 2002-2005 National Center for Medical Rehabilitation Research (NCMRR) of NICHD at NIH.  
National Research Service Award – Research Fellowship.  
Susan E. Fasoli, Awardee. Neville Hogan – MIT Sponsor.  
Title: Integrating Robotic Technology and Stroke Rehabilitation
- 2005-2008 Charles H. Hood Foundation, Boston MA.  
Susan E. Fasoli P.I.  
Title: Upper Limb Rehabilitation for Children with Cerebral Palsy

### **Completed Unfunded Projects:**

- 2007-2008 Reliability and Validity of the Fugl-Meyer Assessment (Upper Limb Subtest) for Children with Hemiplegia. Spaulding Rehabilitation Hospital & Franciscan Hospital for Children.

### **Report of Local Teaching and Training**

#### **Teaching of Students in Courses:**

- 1994-1996 Full time instructor in occupational therapy program at Worcester State College. Responsibilities included teaching, student advising, and participation in curriculum revision and program development. Chair of faculty search committee during 1995-1996 academic year.
- 1997-2000 Lab Instructor for undergraduate and MSOT students at Sargent College of Health and Rehabilitation Sciences at Boston University in the following courses: OT Practice: Physical Dysfunction (OT 335, OT 535), and Analysis & Adaptation of Occupation (OT 313). Teaching Fellow for Research Methods in Occupational Therapy (OT 620).
- 2005-2006 Sargent College of Health and Rehabilitation Sciences at Boston University: Lecturer & Lab Instructor for undergraduate and MSOT students: OT 555 Clinical Gross Anatomy. On-line course facilitator OT 900 and OT 901 Scholarly Paper.

#### **Clinical Supervisory and Training Responsibilities:**

- 2005-2011 Rehabilitation Manager for staff of 11 full/part time OTs. Newton Wellesley Hospital, Newton MA.

#### **Other Research Supervisory and Training Responsibilities:**

- 2006-2007 Maria Hamelers, OTR – Research associate. Trained to administer robotic therapy to children with hemiplegia. Spaulding Rehabilitation Hospital.

#### **Formally Supervised Trainees:**

- 2002-present Susan Liecht Doyle MS OTR – Doctoral Advisor through University of Queensland, AU.

### **National and International Invited Teaching and Presentations**

- 2002 Teleconference: Using Robotic Technology to Improve Movement Abilities after Stroke. La Riabilitazione del malato reumatico: Percorsi terapeutici e nuove strategie di trattamento. Centro Congressi “Relais San Clemente Bosco-Perugia, Italy.
- 2003 Conference Presentation: Effects of Robotic Therapy on Motor Impairment and Recovery after Stroke. Biomedical Engineering Society (BMES).
- 2008 Robot-Assisted Rehabilitation for Children with Hemiplegia. State of the Science Workshop on Pediatric Rehabilitation Engineering, New Jersey Institute of Technology RERC, sponsored by NIDRR. Newark, NJ.
- 2008 Robotic therapy to improve arm function after stroke: Research outcomes and clinical implications. Braintree Hospital Neurorehabilitation Conference. Boston, MA.
- 2011 New Explorations: Robot-assisted therapy for children with CP and acquired brain injury. IEEE – EMBS, Boston, MA.
- 2012 Upper limb robotic therapy after stroke: Applying research to clinical practice. Maryland Occupational Therapy Association, Scholars Seminar, Baltimore MD

### **Local Invited Teaching and Presentations**

- 2006 New Directions in Rehabilitation Robotics: Therapy for Children with Hemiplegia. Grand Rounds presentation to medical & rehabilitation staff, Spaulding Rehabilitation Hospital, Boston, MA.
- 2009-2010 Robotic technology to improve arm function after stroke: Research evidence and implications for OT. Lectures to MSOT Students. Sargent College, Boston University, OT Process (OT 524).
- 2010 Robot-assisted therapy after stroke: Research evidence and implications for OT. Massachusetts Association of Occupational Therapy, Neurological Special Interest Group lecture.
- 2011 Fugl-Meyer Assessment: Rater reliability for children with hemiplegia. Two-day workshop held at Riley Children’s Hospital, University of Indiana, Indianapolis.

### **Report of Clinical Activities**

#### **Professional/Clinical Positions (1985 to present):**

1985-1988	Occupational Therapist (OTR)	Hahnemann Rehabilitation Center Worcester, MA
1988-1992	Clinical Supervisor-Occupational Therapy	Fairlawn Rehabilitation Hospital Worcester, MA
1992-1993	OTR & Driving Program Coordinator	New England Rehabilitation Center Framingham, MA
1993-1994	Level III Advanced Clinician Driving Program Coordinator	Fairlawn Rehabilitation Outpatient Center, Westboro, MA
1995-1997	Per Diem OTR	Walpole Area Visiting Nurse Association, Walpole, MA
1996-1998	Per Diem OTR	Milford-Northbridge Area Visiting Nurse Association, Mendon, MA
2000-2001	Per Diem OTR	Milford-Whitinsville Regional Hospital, Milford, MA
2006-2011	Rehabilitation Manager, Occupational Therapy	Newton Wellesley Hospital, Newton, MA

## Report of Scholarship

### Publications:

#### **Peer Reviewed Publications:**

Krebs, H.I., Volpe, B.T., Ferraro, M., **Fasoli, S.**, Palazzolo, J., Rohrer, B., Edelstein, L., & Hogan, N. Robot-Aided Neuro-Rehabilitation: From Evidence-Based to Science-Based Rehabilitation. *Topics in Stroke Rehabilitation*, 2002;8(4):54-70.

**Fasoli, S. E.**, Trombly, C. A., Tickle-Degnen, L., & Verfaellie, M. H. Context and goal-directed movement: The effect of materials-based occupation in persons with and without CVA. *OTJR: Occupation, Participation and Health*, 2002;22(3):119-128.

**Fasoli, S. E.**, Trombly, C. A., Tickle-Degnen, L., & Verfaellie, M. H. The effect of instructions on functional reach in persons with and without cerebrovascular accident. *American Journal of Occupational Therapy*, 2002;56:380-90.

Ferraro, M., Demaio, J.H., Krol, J., Trudell, C., Edelstein, L., Christos, P., England, J., **Fasoli, S.**, Aisen, M.L., Krebs, H.I., Hogan, N. and Volpe, B.T. Assessing the Motor Status Score: A scale for the evaluation of upper limb motor outcomes in patients after stroke. *Neurorehabilitation & Neural Repair*; 2002;16(3):283-89.

Rohrer, B., **Fasoli, S.**, Krebs, H.I., Hughes, R., Volpe, B., Frontera, W.R., Stein, J., & Hogan, N. Movement smoothness changes during stroke recovery. *Journal of Neuroscience*, 2002;22(18):8297-8304.

**Fasoli, S. E.**, Krebs, H. I., Stein, J., Frontera, W. R., & Hogan, N. Effects of Robotic Therapy on Motor Impairment and Recovery in Chronic Stroke. *Archives of Physical Medicine and Rehabilitation*, 2003;84:477-82.

Barreca, S., Wolf, S., **Fasoli, S.**, Bohannon, R. Treatment interventions for the paretic upper limb of stroke survivors: a critical review. *Neurorehabilitation & Neural Repair*, 2003;17:220-6.

Rohrer, B., **Fasoli, S.**, Krebs, H.I., Volpe, B., Frontera, W., Stein, J., & Hogan, N. Submovements grow larger, fewer, and more blended during stroke recovery. *Motor Control*, 2004;9:472-83.

**Fasoli, S. E.**, Krebs, H. I., Stein, J., Frontera, W. R., Hughes, R., & Hogan, N. Robotic therapy for chronic motor impairments after stroke: Follow-Up Results. *Archives of Physical Medicine and Rehabilitation*, 2004;85:1106-11.

**Fasoli, S.E.**, Krebs, H.I., Ferraro, M., Hogan, N., & Volpe, B.T. Does shorter rehabilitation limit potential recovery post-stroke? *Neurorehabilitation & Neural Repair*, 2004;18:88-94.

Stein, J., Krebs, H.I., Frontera, W.R., **Fasoli, S.E.**, Hughes, R., & Hogan, N. Comparison of two techniques of robot-aided upper limb exercise training after stroke. *American Journal of Physical Medicine & Rehabilitation*, 2004;83:720-28.

**Fasoli, S.E.**, Krebs, H.I., Hogan, N. Robotic technology and stroke rehabilitation: Translating research into practice. *Topics in Stroke Rehabilitation*, 2004;11(4): 11-19.

Finley, M.A., **Fasoli, S.E.**, Dipietro, L., Ohlhoff, J., MacClellan, L., Meister, C., Whittall, J., Macko, R., Bever, C.T., Krebs, H.I., & Hogan, N. Short Duration Upper Extremity Robotic Therapy in Stroke Patients with Severe Upper Extremity Motor Impairment. *Journal of Rehabilitation Research and Development*, 2005; 42: 683-92.

Hogan N., Krebs, H.I., Rohrer, B., Palazzolo, J.J., Dipietro, L., **Fasoli, S.E.**, Stein, J., Hughes, R., Frontera, W.R., Lynch, D., Volpe, B.T. Motions or muscles? Some behavioral factors underlying robotic assistance of motor recovery after stroke. *Journal of Rehabilitation Research and Development* 2006; 43: 605-18.

**Fasoli, S.E.**, Krebs, H.I., Hughes, R., Stein, J., & Hogan, N. Functionally-based rehabilitation robotics: A next step? *International Journal of Assistive Robotics and Mechatronics*, 2006; 7(2): 26-30.

**Fasoli, S. E.**, Krebs, H. I., Hughes, R. Stein, J., and Hogan N. Functionally-Based Rehabilitation:

- Benefit or Buzzword? IEEE 9th International Conference on Rehabilitation Robotics, 2005; 28:223-26.
- Stein J, Hughes R, **Fasoli S**, Krebs HI, Hogan N. Clinical applications of robots in rehabilitation. *Critical Reviews in Physical and Rehabilitation Medicine*, 2005;17(3):217-30.
- Dipietro, L., Krebs, H.I., **Fasoli, S.E.**, Volpe, B.T., Stein, J., Bever, C. & Hogan, N. Changing motor synergies in chronic stroke. *J Neurophysiol.* 2007; 98(2):757-68.
- Krebs, H.I., Mernoff, S., **Fasoli, S.E.**, Hughes, R., Stein, J. & Hogan, N. A Comparison of Functional and Impairment-Based Robotic Training in Severe to Moderate Chronic Stroke: A Pilot Study. *NeuroRehabilitation*, 2008; 23(1):81-87.
- Krebs, H.I., DiPietro, L., Levy-Tzedek, S., **Fasoli, S.E.**, Rykman-Berland, A., Zipse, J., Fawcett, J.A., Stein, J., Poizner, H., Lo, A.C., Volpe, B.T., Hogan, N. A paradigm shift for rehabilitation robotics. *Engineering in Medicine & Biology Magazine, IEEE*, 2008; 27(4); 61-70.
- Fasoli, S.E.**, Fragala-Pinkham M, Hughes R, Krebs HI, Hogan N, Stein J. Robotic Therapy and Botulinum Toxin Type A: A Novel Intervention Approach for Cerebral Palsy. *American Journal of Physical Medicine & Rehabilitation*. [Epub ahead of print] 2008 Jul 9.
- Fasoli, S.E.**, Fragala-Pinkham, M., Hughes, R., Hogan, N., Krebs, H.I., Stein, J. Upper Limb Robotic Therapy for Children with Hemiplegia. *American Journal of Physical Medicine & Rehabilitation*. 2008; 87(11):929-36.
- Dipietro, L., Krebs, H.I., **Fasoli, S.E.**, Volpe, B.T., & Hogan, N. Submovement changes characterize generalization of motor recovery after stroke. *Cortex*. 2009 Mar;45(3):318-24. Epub 2008 Jun 14.
- Doyle S., Bennett S., **Fasoli S.E.**, McKenna K.T. Interventions for sensory impairment in the upper limb after stroke. *Cochrane Database of Systematic Reviews*. 2010;6: Art. No.: CD006331.
- Doyle, S., Bennett, S., **Fasoli, S.**, & McKenna, K. Interventions for sensory impairment in the upper limb after stroke. *Stroke*, 2011; 42: e18; DOI: 10.1161/STROKEAHA.110.604348.
- Fasoli, S.E.**, Fragala-Pinkham, M., Hughes, R., Hogan, N., Stein, J., Krebs, H.I. Upper Limb Robot-Assisted Therapy: A New Option for Children with Hemiplegia. *Technology and Disability*, 2010; 22: 193-198.
- Dipietro, L., Krebs, H.I., Volpe, B.T., Stein, J., Bever, C., Mernoff, S.T., **Fasoli, S.E.** & Hogan, N. Learning, not adaptation, characterizes stroke motor recovery: Evidence from kinematic changes induced by robot-assisted therapy in trained and untrained task in the same workspace. *IEEE Trans Neural Syst Rehabil Eng.* 2012 Jan;20(1):48-57. Epub 2011 Dec 16.
- Krebs, H.I., **Fasoli, S.E.**, Dipietro, L., Fragala-Pinkham, M., Hughes, R., Stein, J., & Hogan, N. Motor Learning Characterizes Habilitation of Children with Cerebral Palsy. [published online ahead of print February 13 2012]. *Neurorehabil Neural Repair*. 2012. <http://nnr.sagepub.com/content/early/2012/02/13/1545968311433427>. Accessed February 22, 2012.
- Fasoli, S.E.**, Ladenheim, B., Mast, J. & Krebs, H.I. New horizons for pediatric assisted therapy in pediatrics. *American Journal of Physical Medicine & Rehabilitation* (in press).
- Fasoli, S.E.**, Fragala-Pinkham, M., & Haley, S.T. (in process). Reliability and Validity of the Fugl-Meyer Assessment (Upper Limb Subtest) for Children with Hemiplegia.

### Proceedings of Meetings:

- Krebs, H.I., Volpe, B.T., Palazzolo, J., Rohrer, B., Ferraro, M., **Fasoli, S.**, Edelstein, L., & Hogan, N. Robot-Aided Neuro-Rehabilitation in Stroke: Interim Results on the Follow-up of 76 Patients and on Movement Performance Indices. In Mounir Mokhtari (Ed.), *Integration of Assistive Technology in the Information Age; Assistive Technology Research Series*, Amsterdam: IOS Press; 2001.
- Krebs, H.I., Volpe, B.T., Palazzolo, J., **Fasoli S.**, Ferraro M., Edelstein L., & Hogan, N. Disturbances of Higher Level Neural Control - Robotic Applications in Stroke; *IEEE - 23<sup>rd</sup> EMBS*; 2001.

**Fasoli, S.E.**, Krebs, H.I., Hughes, R., Stein, J., & Hogan, N. Functionally-based rehabilitation: Benefit or Buzzword? Proceedings of the IEEE 9th International Conference on Rehabilitation Robotics; 28: 223-226; 2005.

**Fasoli, S.E.**, Fragala-Pinkham, M., & Haley, S. Fugl-Meyer Assessment: Reliability for children with hemiplegia. In 2009 ACRM-ASNR Joint Educational Conference Abstracts; Archives of Physical Medicine & Rehabilitation; 90: Oct 2009.

### **Book Chapters:**

**Fasoli, S. E.** A Case Study Approach to Solving Complex Problems: Addressing Cognitive, Psychosocial, and Environmental Concerns. In: Rosenfeld, M. S. (Ed.). Motivational Strategies in Geriatric Rehabilitation. Bethesda: American Occupational Therapy Association; 1997. p. 41-53.

**Fasoli, S. E.** Restoring Competence for Homemaker and Parent Roles. In Trombly, C. A. & Vining Radomski, M. (Eds.), Occupational Therapy for Physical Dysfunction (5th Ed.). Philadelphia: Lippincott Williams & Wilkins; 2002. p. 695-714.

Hogan, N., Krebs, H.I., Rohrer, B.R., **Fasoli, S.E.**, Stein, J., Volpe, B.T. Technology for Recovery after Stroke. In Barnes, M.P., Dobkin, B.H., & Bogousslavsky, J. (Eds.). Recovery after Stroke. Cambridge: Cambridge University Press; 2005. p. 604-622

**Fasoli, S. E.** Restoring Competence for Homemaker and Parent Roles. In Trombly Latham, C. A. & Vining Radomski, M. (Eds.). Occupational Therapy for Physical Dysfunction (6th Ed.). Philadelphia: Lippincott Williams & Wilkins; 2008. p. 854-74.

**Fasoli, S. E.** (2007). Assessing Roles and Competence. In Trombly Latham, C. A. & Vining Radomski, M. (Eds.). Occupational Therapy for Physical Dysfunction (6th Ed.). Philadelphia: Lippincott Williams & Wilkins; 2008. p. 65-90.

Stein, J., Hughes, R., **Fasoli, S.E.** Krebs, H.I., & Hogan, N. Technological aids for stroke recovery. In Stein, J., Macko, R., Zorowitz, R., Harvey, R. & Winstein, C. (Eds.). Stroke Recovery and Rehabilitation. New York: Demos Publishing; 2009. p. 307-21.

**Fasoli S.E.** (2011). Rehabilitation Technologies to Promote Upper Limb Recovery. In Gillen, G. (Ed.), Stroke rehabilitation: A function based approach (3<sup>rd</sup> Ed.). St. Louis: Elsevier.

### **Clinical Communications:**

#### Review Papers:

**Fasoli, S. E.** How instructions are given in therapy may influence stroke patients' motor performance. Stroke Council Newsletter, American Stroke Association, 2000; 1 (2), 12-14.

**Fasoli, S. E.** Assessing Upper Limb Motor Function in Clients with Stroke. AOTA Physical Disabilities Special Interest Section Quarterly, 2003; 26 (2) 1-4.

#### **Thesis:**

**Fasoli, S.E.** Effects of context and instruction on movement kinematics in adults with and without cerebrovascular accident [dissertation]. Boston: Boston University: 2000.

**Fasoli, S.E.** Use of a dynamic assessment with the Benton 3-D Block Construction Test [Master's thesis]. Boston: Boston University: 1994.

#### **Abstracts:**

**Fasoli, S.E.**, Krebs, H. I., Stein, J., Hughes, R., McCarthy-Jacobson, A., Frontera, W., & Hogan, N. Effects of robotic therapy on upper limb motor impairments in chronic stroke. Stroke 2002; 33: 350-351.