



## Grigore C. Burdea, Professor I

### Years Service at Rutgers: 20 years

1987 – Assistant Professor; 1994- Associate Professor; 2003 – Professor

### Degrees:

Ph.D. in Applied Science (Robotics), New York University, 1987.

M.S. in Applied Science, New York University, 1985.

M. Eng./B. Eng., Bucharest, Romania, 1980.

### Other Related Experience (teaching, industrial, etc.):

- 06/93-08/93      Director of Research, *Conseil Nationale de Reserche Scientifique* (French NSF), Paris France, June–August 1993.
- 1988 – 1989      AT&T Bell Laboratories, NJ, Consultant
- 09/87 – 06/88      Consultant, City University of New York – Graduate School, New York City.

### Consulting, Patents, etc. (last 5 years):

- G. Burdea, A. Arezki, M. Bouzit, and D. Fensterheim, “Second-Generation Rutgers Arm Computerized rehabilitation system,” OCLTT Disclosure, Oct. 16, 2006.
- G. Burdea, M. Bouzit, Michael Neubeuer, Fensterheim, Rares Boian, Kira Morrow “Second-generation Rutgers Arm rehabilitation system,” OCLTT Disclosure, Nov. 4, 2005.
- G. Burdea, M. Kuttuva, M. Bouzit, A. Merians, “Arm rehabilitation and telerehabilitation system,” OCLTT Disclosure 05-078, Feb. 2005. Provisional US patent filed April 14 2005.
- J. Lewis, J. Deutsch, R. Boian and G. Burdea, “Remote Console for Telerehabilitation (ReCon),” OCLTT Disclosure 05-086, Feb. 2005.
- G. Burdea and R. Boian, Patent Pending "Method and Apparatus for Rehabilitation of Neuromotor Disorders," US Patent 6827579, Dec. 7, 2004.

### Principal Publications (last five years):

- Merians, A. H. Poizner, R. Boian, G. Burdea and S. Adamovich, “Sensorymotor Training in a Virtual Environment: Does it Improve Functional Recovery Post-Stroke?” *Neurorehabilitation and Neural Repair*, Vol. 20(2), pp. 252-267, June 2006.
- Lewis J., J. Deutsch, and G. Burdea, “Usability of the Remote Console (ReCon) for Virtual Reality Telerehabilitation: Formative Evaluation,” *Cyber Therapy and Behavior*, Special Issue on IWVR 2005, Vol. 9, Issue 2, April 2006.
- Deutsch JE, Lewis JA, Whitworth E, Boian R, Burdea G, Tremaine M., “Formative Evaluation and Preliminary Findings of a Virtual Reality Telerehabilitation System for the Lower Extremity,” *Presence*, Special Issue on Virtual Rehabilitation, Vol. 14(2), pp.198-213, April 2005.
- Adamovich S., A. Merians, R. Boian, M. Tremaine, G. Burdea, M. Recce and H. Poizner “A Virtual Reality Based Exercise System for Hand Rehabilitation Post-Stroke,” *Presence*, Special Issue on Virtual Rehabilitation, Vol. 14(2), pp. 161-174, April 2005.
- Kuttuva M., W. Craelius, G. Burdea, F Flint, “Manipulation Practice for Upper-limb Amputees Using Virtual Reality,” *Presence*, Special Issue on Virtual Rehabilitation, Vol. 14(2), 175-182, April 2005.
- Deutsch, J., A. Merians, S. Adamovich, H. Poizner, and G. Burdea, “Development and Application of Virtual Reality Technology to Improve Hand Use and Gait of Individuals Post-Stroke,” *Restorative Neurology and Neuroscience*, Special issue on motor system plasticity, recovery and rehabilitation, Vol. 22(3-5), pp. 341-386, 2004.

- Burdea G., "Teaching Virtual Reality: Why and How?" *Presence*, vol. 13, no. 4, pp. 463-483, August 2004.
- Burdea G. and P. Coiffet, *Virtual Reality Technology 2nd Edition*, Wiley, New York, 2003. Include a CD with laboratory manual and video simulation examples and Instructor's Resource site at <http://www.vrtechnology.org>.
- Merians, A., D. Jack, R. Boian, M. Tremaine, G. Burdea, S. Adamovich, M. Recce, and H. Poizner, "Virtual Reality-Augmented Rehabilitation for Patients Post Stroke: Three Case Studies," *Physical Therapy*, vol. 82(9), pp. 898-915, September 2002.
- Bouzit, M., G. Burdea, V. Popescu, and R. Boian, "The Rutgers Master Force Feedback Glove," *IEEE/ASME Transactions on Mechatronics*, Vol. 7(2), pp. 256-263, June 2002.
- Jack D., R. Boian, A. Merians, M. Tremaine, G. Burdea, S. Adamovich, M. Recce, and H. Poizner, "Virtual Reality-Enhanced Stroke Rehabilitation," *IEEE Transactions on Neural Systems and Rehabilitation Engineering*, vol. 9 (3), pp. 308-318, September 2001.
- Deutsch, J., J. Latonio, G. Burdea and R. Boian, "Post-Stroke Rehabilitation with the Rutgers Ankle System - A case study," *Presence*, MIT Press, Vol. 10(4), pp. 416-430, August 2001. 4
- Girone M., Burdea, G., M. Bouzit, V. Popescu, and J. Deutsch, "A Stewart Platform-based System for Ankle Telerehabilitation," invited article, Special Issue on Personal Robotics, *Autonomous Robots*, Vol. 10, pp. 203-212, Kluwer, March 2001.

#### **Scientific and Professional Society Memberships:**

- Member, Editorial Board of *Presence*, the MIT Press, 1998-2006.
- Member, Editorial Board of Journal of *Haptics*, IEEE, 1997-present.
- Member, Editorial Board of Computer-Aided Surgery, *Journal of the International Society for Computer Aided Surgery (ISCAS)*, Wiley-Liss, Inc., 1997-present.

#### **Honors and Awards:**

- 2005 Keynote Address, *Virtual Rehabilitation: Visioning the Art of the Possible Conference*, Edmonton, Canada.
- 2003 Keynote Address, *Symposium on Real World Information Systems*, U. of Tokyo, Japan.
- 2002 Fellow, American Institute for Medical and Biological Engineering.
- 2002 Keynote Address, First Int. Workshop on Virtual Rehabilitation, Lausanne, Switzerland.
- 2000 Keynote Address at NATO Workshop on "What is Essential for Virtual Reality to Meet Military Human Performance Goals?" The Netherlands.
- 2000 Keynote Address at "Virtual Reality International Conference 2000," Laval, France.
- 1999 Selected by the National Science and Technology Council for inclusion in President Clinton's Blue Book for work on virtual reality-based telerehabilitation.

#### **Institutional and Professional Service (last five years):**

Member, School of Engineering Committee on Appt. and Promotions (2004-2005)

Member, School of Engineering Commencement Committee (2004, 2005)

Member, RU Physical Science Area Committee (2004)

Member, Promotion Reading Committee, ECE Department (2004)

Member, University Senate (2000-2001)

Member, University Information Science and Technology Council (2000-2001)

Member, University Biomedical Research Advisory Committee (1998-1999)

#### **Professional Development Activities (last five years):**

General Chair, 5th Int. Workshop on Virtual Rehabilitation, New York, August 2006.

General Chair, 2nd Int. Workshop on Virtual Rehabilitation, Piscataway, NJ, September 2003.

General Chair, *IEEE Virtual Reality Conference*, March 2000, NJ.