

I IAN BLACK

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EDUCATION

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| 2004 | M.S. Bioengineering, The Catholic University of America (summa cum laude) |
| 1996 | B.S. Bioengineering, University of California at Berkeley (overall GPA 3.4) |

PUBLICATIONS

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| 2011 | Brokaw EB, Black i, Holley RJ, Lum PS , “Hand Spring Operated Movement Enhancer (HandSOME): a portable hand exoskeleton for stroke rehabilitation,” <i>IEEE transactions on neural systems and rehabilitation engineering</i> , 2011 Aug; 19(4): 391-9. |
| 2011 | Hidler J, Brennan D, Black i, Nichols D, Brady K, Nef T , “ZeroG: overground gait and balance training system,” <i>Journal of Rehabilitation Research and Development</i> , 2011, 48(4): 287-98. |
| 2009 | Nef T, Brennan D, Black i, Hidler JM , “Patient-tracking for an over-ground gait training system,” <i>IEEE 11th International Conference on Rehabilitation Robotics (ICORR)</i> , Kyoto, Japan, June 23-26, 2009. |
| 2007 | Black i, Nichols D, Pelliccio M, Hidler JM , “Quantification of reflex activity in stroke survivors during an imposed multi-joint leg extension movement,” <i>Experimental Brain Research</i> , 2007, Nov; 183(2):271-81. |
| 2006 | Black i, Lee SJ, Hidler JM , “Optimization of force and center-of-pressure estimates using an instrumented split-belt treadmill.” (submitted to: <i>Journal of Applied Physiology</i> , May 2006, publication pending) |
| 2005 | Black i, Brady KP, Hosler-Smythe CR, Hidler JM , “Robotic-assessment of walking ability following neurological injury,” 2005 (summary of research published in NRH Newsletter) |

WORK EXPERIENCE

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| 2010-present | Senior Research Scientist , <i>Neuroscience Research Center (NRC)</i> , design and conduct experimental protocol to quantify functional reach and grasp sensitivity in upper-extremity prosthetic users. |
| 2010-present | Senior Research Scientist , <i>Center for Applied Biomechanics Research and Rehabilitation (CABRR)</i> – lead engineer to design upper-extremity rehabilitation robots for restoration of functional grasp in stroke and traumatic brain injury survivors: Hand EXOskeleton Rehabilitation Robot II (HEXORR II) and Hand Spring-Operated Movement Enhancer (HandSOME). |
| 2010-present | Project Coordinator , <i>Assistive Technology Research Center (ATRC)</i> , manage and coordinate Department of Defense (DoD) quarterly and annual reporting requirements for 30 Army-funded research protocols being conducted at the National Rehabilitation Hospital (NRH). |
| 2006-10 | Design Engineer , <i>Aretech, LLC</i> – lead engineer to design, prototype, develop and bring to market the ZeroG System, a lower-extremity rehabilitation robot providing a reduced-gravity environment for survivors of neurological injury to practice gait and balance tasks in everyday settings. |

2003-06	Research Engineer, CABRR – devise and implement calibration methods for instrumented split-belt treadmill to optimize ground-reaction forces and center of pressure localization during active walking. Devise, coordinate, and conduct research protocol to quantify stretch-reflex activity in the lower-extremities of stroke survivors. Publish findings in peer-reviewed journal.
2003-04	Teaching Assistant, The Catholic University of America - TA for “Biomedical Instrumentation and Design” (BE513) and “Differential Equations for Engineers” (ENGR309).
2001-02	High School Math Teacher, John Swett High School - teach basic math and algebra II classes. Initiate and lead daily after-school math workshops for forty underachieving students.
1999-2000	Researcher, Perfuse Core Laboratory - encode blood flow data from angiographic films showing arterial blockage in coronary arteries.
1998-99	Writer, PlanetRx.com - research, summarize, and fact-check health articles for web-based pharmaceutical start-up company.

STUDENT PROJECTS

2003-04	Sonar-Based Visual Aid, CUA - use programmable microchip technology (PIC) to design and build a sonar-based visual aid that enables blind users to sense objects within a 20 foot radius.
2002	Wheelchair Seat Elevator, CUA - design and build a rope-and-pulley-based seat elevator to enable a wheelchair user to manually raise herself approximately 6 feet above floor level.

COMMUNITY INVOLVEMENT

2010-present	Outreach Coordinator, CABRR and NRC , manage volunteers involved in research and development projects in the lab. Give lab tours and coordinate research demonstrations for outside visitors including university faculty, doctoral candidates, and local high-school students.
2012	Invited Speaker, Annual Meet and Greet Amputee Symposium , presentation title: “Internal models: a way to think about how we interact with the world”
2012	Senior Design Project Mentor, Catholic University of America (CUA) , co-advise group of bioengineering undergraduate students on the design of an accelerometer-based tracking system for recording arm movements in the home environment.
2011	Presenter, International Spinal Cord Society (ISCoS)/ American Spinal Injury Association (ASIA) , educate conference attendees on the use of a powered exoskeleton designed to restore hand function in chronic stroke.
2007-08	Mentor, Center for Applied Biomechanics Research and Rehabilitation – mentor and support CUA students working towards Master’s or doctoral degrees in the lab.
2007-08	Mentor, Eleanor Roosevelt High School – work with high-school senior in research project to design and build an automatic sheet-music page turning device