Julia Ebert

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github.com/jtebert

EDUCATION

HARVARD UNIVERSITY — Cambridge, MA
PhD student in Computer Science — 2016 – present
Advisor: Prof. Radhika Nagpal

IMPERIAL COLLEGE LONDON — London, UK
Master of Research in Bioengineering, with Distinction — 2016
Advisors: Prof. Etienne Burdet, Dr. Ildar Farkhatdinov
Thesis: *Assisting Balance Recovery with a Lower Limb Exoskeleton*

NORTHEASTERN UNIVERSITY — Boston, MA
BS in Behavioral Neuroscience — 2015
Minor in Computer Science GPA: 3.98 / 4.0, summa cum laude
Honors Thesis: *Asymmetric Learning in an Asymmetric Bimanual Task*

SCHOLARSHIPS, GRANTS, AND AWARDS

NATIONAL

2016 Department of Energy Computational Science Graduate Fellowship (DOE CSGF)
2016 Hertz Fellowship Finalist
2016 NSF Graduate Research Fellowship Program (GRFP) Honorable Mention
2015 Marshall Scholar
2015 Rhodes, Fulbright, and Mitchell Scholarship Finalist
2013 Goldwater Scholarship
2013 DAAD Undergraduate Scholarship

NORTHEASTERN UNIVERSITY

2015 University Honors Program Distinction
2015 Honors in the Discipline (Honors thesis)
2015 Alex Skavenski Award for Behavioral Neuroscience
2015 Sears B. Condit Award for academic achievement
2015 Dean's List (6 semesters)
2014 Provost Undergraduate Advanced Research Award
2013 Provost Undergraduate Research Award
2013 Presidential Global Scholarship
2010 National Merit Scholarship

RESEARCH EXPERIENCE

IMPERIAL COLLEGE HUMAN ROBOTICS GROUP — London, UK
Research Student — September 2015 – August 2016
Advisors: Prof. Etienne Burdet, Dr. Ildar Farkhatdinov

- Develop cooperative human-computer control for balance recovery in a lower limb robotic exoskeleton and assess its effectiveness
- Create Simulink model for designing and evaluating controllers

NORTHEASTERN UNIVERSITY ACTION LAB — Boston, MA
Research Assistant — September 2011 – August 2015
Research Co-op — July – December 2012; September – December 2014
Advisor: Prof. Dagmar Sternad

- Collected data from human participants in motor control experiments, including electoencephalogram (EEG)
- Designed and programmed data collection protocols and analysis tools in C++ (on the HapticMaster robotic manipulandum), Matlab, and Psychtoolbox
- Participated in and presented at lab meetings on movement neuroscience

Projects

- Prediction and stability in control of objects with complex dynamics
- Learning and long-term retention of an asymmetric bimanual task (Honors thesis; manuscript in preparation)
- Effects of central fatigue on cognitive and motor performance

NORTHEASTERN UNIVERSITY MARINE SCIENCE CENTER — Nahant, MA

Research Assistant — May – August 2015
Advisor: Prof. Joseph Ayers

- Programmed network of electronic neurons in LabView to control rheotaxis in a biomimetic robotic lobster
- Designed and built bend-sensing antennae for RoboLobster
- Created circuits and Arduino programming for bend sensation and antennae control

MAX PLANCK INSTITUTE FOR INTELLIGENT SYSTEMS — Tübingen, Germany
Research Co-op — July – December 2013
Advisor: Prof. Stefan Schaal, Director of Max Planck Institute

- Designed and developed experiments for the CyberGlove data glove
- Collaborated with a post-doctoral researcher to develop reinforcement learning models of a novel motor skill task
- Collected pilot behavioral data from human subjects
- Attended seminars and lab meetings on robotics and machine learning

CONFERENCES AND PRESENTATIONS

Ebert J, Farkhatdinov I, van Oort G, van Asseldonk E, & Burdet E. *Preliminary Study on Assisting Balance Recovery with Lower Limb Exoskeleton.* Work in progress paper and poster presented at: EuroHaptics 2016; 2016 July 4–7; London, UK.

Sternad D, Mukovskiy A, **Ebert J**, & Dijkstra T. *Dynamic Stability in the Control of Complex Objects.* Poster at: Biomechanics and Neural Control of Movement 2016; 2016 June 12–17; Mt. Sterling, OH.

Ebert J, Park S, & Sternad D. *Asymmetric Learning in an Asymmetric Bimanual Task.* Poster presented at: Society for the Neural Control of Movement 25th Annual Meeting; 2015 April 20–24; Charleston, SC.

Ebert J, Mukovskiy A, Dijkstra T, & Sternad D. *Why You Don't Spill Your Coffee.* Poster presented at: Northeastern University Research, Innovation, and Scholarship Expo (RISE); 2015 April 9; Boston, MA.

Ebert J, Kim S, Sternad D, & Schaal S. *Learning and exploration in a novel dimensionality-reduction task.* Poster presented at: Society for the Neural Control of Movement 24th Annual Meeting; 2014 April 20–25; Amsterdam, NL.

Ebert J, Park S, & Sternad D. *Asymmetric Learning in an Asymmetric Bimanual Task.* Poster presented at: Northeastern University Research, Innovation, and Scholarship Expo (RISE); 2014 April 10; Boston, MA.

Ebert J, Park S, & Sternad D. *Asymmetric Learning in an Asymmetric Bimanual Task.* Poster presented at: Northeast Undergraduate Research and Development Symposium; 2013 March 2–3; Biddeford, ME.

Ebert J, Park S, Griffin L, O'Neil-Pirozzi T, & Sternad D. *Central Fatigue in Cognitive and Motor Performance.* Poster presented at: Northeastern University Research, Innovation, and Scholarship Expo (RISE); 2012 March 29; Boston, MA.

TEACHING EXPERIENCE

NORTHEASTERN DEPARTMENT OF COMPUTER SCIENCE — Boston, MA
Teaching Assistant — September 2014 – April 2015

- Taught two weekly lab courses of 30–40 students each
- Graded student exams and quizzes
- Held twice-weekly office hours to assist students with course material

Tutor — September 2012 – April 2014

- Assisted college students in weekly introductory computer science labs
- Graded weekly student programming assignments
- Tutored students in course material at office hours

PROACTIVE RECRUITMENT IN SCIENCE AND MATHEMATICS (PRISM)
Boston, MA
Undergraduate Mentor
July 2011 – April 2013

- Planned and organized programming throughout the academic year for first and second year college students interested in mathematics and science
- Facilitated collaboration and discussion among participants in problem solving activities and problem sets
- Guided students in designing and implementing independent research projects

OTHER EXPERIENCE

INTERACTIVE MOTION TECHNOLOGIES
Watertown, MA
Software Development Co-op
July – September 2014

- Designed specifications for stroke evaluation software with input from clinicians, researchers, and software developers
- Developed software to store and automate clinician stroke evaluations with an HTML5 and JavaScript front end and a Django and SQL back end

COMMUNITY SERVICE

NORTHEASTERN UNIVERSITY
Boston, MA
Civic Engagement Program
September 2010 – May 2015

- Committed to at least 100 hours of community service annually
- Participated in service events such as Relay for Life and food sorting at the Greater Boston Food Bank

VOLUNTEER ACTIVITIES

Boston Bikes volunteer	2014–2015
Tutor team leader at TechBoston Academy	2014
Brigham and Women's Hospital: Medical Career Exploration Program volunteer	2011–2013
Massachusetts General Hospital: Youth Program mentor	2010–2011

SKILLS

PROGRAMMING & SOFTWARE
Python (including Django, NumPy, SciPy, MatPlotLib) • MATLAB • C++ • Simulink • Java • Arduino • LabView • JavaScript • HTML/CSS • LaTeX• Database design • Linux

LABORATORY
3D motion capture • Kinematic and EEG data collection in human subjects • Basic signal processing (filtering, frequency domain analysis)