Julia Ebert

PhD Candidate • Robotics Researcher

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Education

Cambridge, MA
2016 –
2019

Harvard University
> PhD Candidate in Computer Science
> Master of Science in Computer Science
Advisor: Prof. Radhika Nagpal

London, UK
2016

Imperial College London
> Master of Research in Bioengineering, with Distinction
Marshall Scholar
Advisors: Prof. Etienne Burdet, Dr. Ildar Farkhatdinov
Thesis: *Assisting Balance Recovery with a Lower Limb Exoskeleton*

Boston, MA
2015

Northeastern University
> Bachelor of Science in Behavioral Neuroscience, Minor in Computer Science
GPA: 3.98 / 4.0, summa cum laude
Honors Thesis: *Asymmetric Learning in an Asymmetric Bimanual Task*

Peer-Reviewed Publications

J Ebert, M Gauci, F Mallmann-Trenn, and R Nagpal. 2020. Bayes Bots: Collective Bayesian Decision-Making in Decentralized Robot Swarms. In *2020 IEEE International Conference on Robotics and Automation (ICRA)*, 7186-7192. ⌗

I Farkhatdinov, **J Ebert**, G van Oort, M Vlutters, E van Asseldonk, and E Burdet. 2019. Assisting Human Balance in Standing with a Robotic Exoskeleton. *IEEE Robotics and Automation Letters*, 4, 2, 414–421. ⌗

J Ebert, M Gauci, and R Nagpal. 2018. Multi-feature collective decision making in robot swarms. In *Proceedings of the 17th International Conference on Autonomous Agents and MultiAgent Systems*, 1711–1719. Stockholm, Sweden. ⌗

S Bazzi, **J Ebert**, N Hogan, and D Sternad. 2018. Stability and Predictability in Dynamically Complex Physical Interactions. In *2018 IEEE International Conference on Robotics and Automation (ICRA)*, 5540–5545. ⌗

S Bazzi, **J Ebert**, N Hogan, and D Sternad. 2018. Stability and predictability in human control of complex objects. *Chaos*, 28, 10. ⌗

Grants and Scholarships

2020 – 2021	Siebel Scholar ⌗
2016 – 2020	Department of Energy Computational Science Graduate Fellowship (DOE CSGF) ⌗
2015 – 2016	Marshall Scholarship ⌗
2014	Northeastern Provost Undergraduate Advanced Research Award
2013 – 2015	Barry Goldwater Scholarship
2013	Northeastern Provost Undergraduate Research Award
2013	DAAD Undergraduate Scholarship
2013	Northeastern Presidential Global Scholarship ⌗
2010 – 2015	Northeastern National Merit Scholarship

Awards

2018	Certificate of Distinction in Teaching, Harvard University Bok Center ⌗
2016	Finalist, Hertz Fellowship ⌗
2016	Honorable Mention, National Science Foundation Graduate Research Fellowship Program (NSF GRFP) ⌗
2015	Northeastern Honors in Behavioral Neuroscience (for thesis) ⌗

2015	Northeastern University Honors Program Distinction (for coursework) 🔗
2015	Northeastern Alex Skavenski Award for Behavioral Neuroscience
2015	Northeastern Sears B. Condit Award for academic achievement
2010 – 2015	Northeastern Dean's List (6 semesters) 🔗
2015	Finalist; Rhodes, Fulbright, and Mitchell Scholarships

Research

Cambridge, MA	**Harvard University Self-Organizing Systems Research Group**
	Prof. Radhika Nagpal
2016 –	› Multi-feature perception and decision making in robot collectives
2017 –	› LARVAbot: Locomotion of autonomous robots via aggregation
Livermore, CA	**Lawrence Livermore National Laboratory**
	Dr. Michael Schneider
2018 –	› Collaborative Autonomy for Space Situational Awareness
London, UK	**Imperial College Human Robotics Group**
	Prof. Etienne Burdet and Dr. Ildar Farkhatdinov
2015 – 2016	› Co-control of balance recovery in a lower limb exoskeleton
Boston, MA	**Northeastern University Action Lab**
	Prof. Dagmar Sternad
2014 – 2015	› Prediction and stability in control of objects with complex dynamics
2012 – 2015	› Learning and long-term retention of an asymmetric bimanual task
2011 – 2012	› Effects of central fatigue on cognitive and motor performance
Nahant, MA	**Northeastern University Marine Science Center**
	Prof. Joseph Ayers
May – Aug. 2015	› Neuro-inspired rheotaxis and antenna design in a robotic lobster
Watertown, MA	**Interactive Motion Technologies**
July – Sept. 2014	› Integrated stroke assessment software in rehabilitation robotics
Tübingen, DE	**Max Planck Institute for Intelligent Systems**
	Prof. Stefan Schaal
July – Dec. 2013	› Learning and exploration in a novel dimensionality-reduction task

Conference Abstracts and Posters

J Ebert, M Gauci, and R Nagpal. 2019. Bayes Bots: Bayesian Decision-Making for Robot Swarms. Poster at *DOE CSGF Program Review* (14–18 July 2019). Washington, DC. 🔗

J Ebert, J Meyers, W Dawson, and M Schneider. 2018. Collaborative Autonomy for Space Situational Awareness. Poster at *Lawrence Livermore National Laboratory Summer Student Poster Symposium* (8 August 2018). Livermore, CA. 🔗

J Ebert, M Gauci, and R Nagpal. 2018. Multi-Feature Collective Decision Making in Robot Swarms. Poster at *DOE CSGF Program Review* (15–19 July 2018). Washington, DC. 🔗

J Ebert, C Teeple, E Steinhardt, and S Ramanathan. 2017. Infotaxis in a Multi-agent Sensor Network. Poster at *DOE CSGF Program Review* (24–27 July 2017). Washington, DC. 🔗

I Farkhatdinov, **J Ebert**, G van Oort, E van Asseldonk, and E Burdet. 2017. Human Balance Augmentation with Lower Limb Exoskeleton Robot. Poster at *RehabWeek 2017 workshop: Towards a next generation of wearable robotic devices for human-oriented assistance and therapy* (17 July 2017). London, UK.

J Ebert, I Farkhatdinov, G van Oort, E van Asseldonk, and E Burdet. 2016. Preliminary Study on Assisting Balance Recovery with Lower Limb Exoskeleton. Poster at *EuroHaptics 2016* (4–7 July 2016). London, UK. 🔗

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

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

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

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

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

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

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

Teaching and Mentoring

Cambridge, MA	**Harvard University**
Summer 2019	› **REU mentor** for Kilobot research and outreach project
Fall 2018, Fall 2019	› **Teaching staff,** How To Make (Almost) Anything, Harvard section
Fall 2018, Fall 2019	› **Guest lecture**, CS 289: Biologically-inspired Multi-agent Systems
Spring 2018	› **Teaching fellow,** CS 189: Autonomous Robot Systems 🔗
Boston, MA	**Northeastern University**
2014 – 2015	› **Teaching assistant,** CS 2500: Fundamentals of Computer Science (2 semesters)
2012 – 2014	› **Tutor,** CS 2500: Fundamentals of Computer Science (3 semesters)
2011 – 2013	› **Undergraduate mentor,** Proactive Recruitment in Science and Mathematics (PRISM)

Outreach and Service

2017, 2018, 2020	Volunteer, Boston Public Schools Science Fair
2019	Marshall Scholarship Reading Committee
2018, 2019	Robot Design Judge, FIRST LEGO League
2018	Speaker, Science in the News fall lecture series: "Brains and Bodies: How to Make Smart Robots" 🔗
2018	Guest, *Brains On!* science podcast live show 🔗
2016	Volunteer, EuroHaptics 2016
2010 – 2015	Volunteer, Northeastern Civic Engagement Program
2014 – 2015	Student Ambassador, Northeastern College of Science
2014	Tutor team leader, TechBoston Academy
2014	Teacher, NEU Splash Program. Class: "This is your Brain"
2011 – 2013	Volunteer, Brigham and Women's Hospital
2010 – 2011	Mentor, Massachusetts General Hospital Youth Program

Skills

Programming	Python (including NumPy, Pandas, Django) · MATLAB · C/C++ (including OpenMP, AVR, Arduino) · HTML/CSS · LaTeX · JavaScript (including Vue.js) · Java
Fabrication	Laser cutting · 3D printing · Vinyl cutting · CNC milling · Electronics design (Eagle) and production · Soldering · Sewing · Molding and casting
Other	Computer-aided design (OnShape) · Database design · Linux · 3D motion capture · Kinematic and EEG data collection in human subjects