Anna Wexler, Ph.D. Assistant Professor, Department of Medical Ethics and Health Policy Perelman School of Medicine, University of Pennsylvania 423 Guardian Drive, Room 1431 | Philadelphia, PA 19104 awex@pennmedicine.upenn.edu • www.wexlerlab.com

EDUCATION

University of Pennsylvania	Aug 2017 – Nov 2018
Postdoctoral Fellow in Advanced Biomedical Ethics, Department of Medical	Ethics & Health Policy,
Perelman School of Medicine	
Massachusetts Institute of Technology	Sep 2012 – June 2017
PhD, HASTS (History, Anthropology, Science, Technology and Society) Prog	gram. Dissertation title:
"Sparking Controversy: the Contested Use of Noninvasive Electrical Brain Stimulation." Ph.D.	
Committee: Professors Susan Silbey (advisor), Natasha Schüll, & Erica James	
Massachusetts Institute of Technology	Sep 2003 – June 2007

Bachelor's of Science, Brain and Cognitive Science Bachelor's of Science, Humanities and Science with a focus in Writing and Neuroscience

WORK EXPERIENCE/APPOINTMENTS

Assistant Professor, Department of Medical Ethics & Health Policy, Perelman School of Medicine, University of Pennsylvania	2019 -
Instructor, Department of Medical Ethics & Health Policy, Perelman School of Medicine, University of Pennsylvania	2018 - 2019
Visiting Scholar, Center for Neuroscience and Society, University of Pennsylvania	2015 - 2016
Freelance Science Writer/Editor, Tel Aviv, Israel	2008 - 2012
WGBH Filmmaker-in-Residence, Boston, MA	2007 - 2008
Research Consultant, Osher Institute, Harvard Medical School	2007 - 2008
Research Assistant, MIT Brain and Cognitive Sciences Department	2003 - 2008

SCHOLARSHIP

Journal Publications

Wexler, A. The Urgent Need to Integrate Neuroscience and Neuroethics. 2020. *American Journal of Bioethics-Neuroscience*, 11(3):219-220.

Reisman, J., and **Wexler, A.** (2020). COVID-19: Exposing the Lack of Evidence-Based Practice in Medicine. *The Hastings Center Report* 50(3):77-78.

Wexler, A., Nagappan, A., Beswerchij, A., and Choi, R. (2020). Direct-to-consumer orthodontics:

Surveying the User Experience. The Journal of the American Dental Association, 151(8):625-636.

Wexler, A., Nagappan, A., Kopyto, D., Choi, R. (2020). Neuroenhancement for Sale: Assessing the Website Claims of Neurofeedback Providers in the USA. *Journal of Cognitive Enhancement* (published online first), https://doi.org/10.1007/s41465-020-00170-8.

Wexler, A., Davoudi, A., Weissenbacher, D., Choi, R., O'Connor, K., Cummings, H., Gonzalez-Hernandez, G. (2020). Pregnancy and health in the age of the Internet: A content analysis of online "birth club" forums. *PLOS ONE* 15(4), e0230947, https://doi.org/10.1371/journal.pone.0230947.

Ekekezie, C, Perler, BK, Wexler A, Duff, C, Lillis, CJ, Kelly CR. (2020). Understanding the Scope of Do-it-Yourself Fecal Microbiota Transplant. *American Journal of Gastroenterology*, 115(4):603-607.

Solinsky, R, Specker-Sullivan, L, **Wexler A.** (2019). Current barriers and ethical considerations for clinical implementation of epidural stimulation for functional improvement after spinal cord injury. *The Journal of Spinal Cord Medicine*, published online first.

Hendriks S, Grady C, Ramos KM, Chiong W, Fins JJ, Ford P, Goering S, Greely HT, Hutchison K, Kelly ML, Kim SYH, Klein E, Lisanby SH, Mayberg H, Maslen H, Miller FG, Rommelfanger K, Sheth SA, **Wexler A**. (2019). Ethical Challenges of Risk, Informed Consent, and Posttrial Responsibilities in Human Research With Neural Devices: A Review. *JAMA Neurology*, 76(12): 1506-1514.

Wexler, A. (2019). Direct-to-consumer Neurotechnology: A Grounded Appraisal. *American Journal of Bioethics - Neuroscience 10* (4):172-174.

Guerrini C., Wexler A., Zettler, P., McGuire, A. Biomedical Citizen Science or Something Else? Reflections on Terms and Definitions. *American Journal of Bioethics*, 19(8):17-19.

Wexler, A. & Reiner, P. (2019). Oversight of Direct-to-Consumer Neurotechnologies. *Science*, 363:6424, 234-235

Wexler, A. (2019). Separating Neuroethics from Neurohype. Nature Biotechnology 37(9)998-990.

Wexler, A. (2019). Innovative Practice Outside of Medical Institutions. *American Journal of Bioethics*, 19(6):41-42.

Kuersten, A. & Wexler, A. (2019). Brain Modulation and Patent Law. Nature Biotechnology, 37, 18-19.

Green, C.S., Bavelier, D., Kramer, A.F., **Wexler, A.**, Witt, C. (2019). Improving Methodological Standards in Behavioral Interventions for Cognitive Enhancement. *Journal of Cognitive Enhancement* 3(1):2-29.

Wexler, A. & Thibault, R. (2019). Mind-reading or misleading? Assessing direct-to-consumer electroencephalography (EEG) devices marketed for wellness and their ethical and regulatory implications. *Journal of Cognitive Enhancement*, 3(1):131-137.

Wexler, A. (2018). "Who uses direct-to-consumer brain stimulation products, and why? A study of home users of tDCS devices." *Journal of Cognitive Enhancement*, 2(1): 114-134.

R. Yuste, S. Goering, G. Bi, ... D. Wasserman, A. Wexler, M. Whittaker, J. Wolpaw (2017). "Four ethical priorities for neurotechnologies and AI." *Nature*, 551(7679): 159-163.

A. Antal, I. Alekseichuk, M. Bikson, ... Y. Ugawa, **A. Wexler**, U. Ziemann, M. Hallett, and W. Paulus. (2017). "Low intensity transcranial electric stimulation: Safety, ethical, legal regulatory and application guidelines." *Clinical Neurophysiology*, 128(9): 1774-1809.

Wexler, A. (2017). "The Social Context of Do-It-Yourself Brain Stimulation: Neurohackers, Biohackers, and Lifehackers." *Frontiers in Human Neurosciences*, 11 (224): 1-6, https://doi.org/10.3389/fnhum.2017.00224.

Wexler, A, and Hamilton, Roy H. (2017). "Crowdsourced tDCS Research: Feasible or Fanciful?" *American Journal of Bioethics-Neuroscience* (8)1:50-53.

Wexler, A. (2017). "The Medical Battery In The United States (1870-1920): Electrotherapy at Home and in the Clinic." *Journal of the History of Medicine and Allied Sciences* 72(2) 166-192.

• Awarded the 2018 <u>Stanley Jackson Award</u> for the best paper to appear in the journal in the preceding three years.

Wexler, A. (2016). "Recurrent Themes in the History of the Home Use of Electrical Stimulation: Transcranial Direct Current Stimulation (tDCS) and the Medical Battery (1870-1920)." *Brain Stimulation* 10(2):187-195.

Wexler, A. (2016). "The practices of do-it-yourself brain stimulation: implications for ethical considerations and regulatory proposals." *Journal of Medical Ethics*, 49 (4): 211-215.

Wexler, A. (2016). "Seeding Controversy: Did Israel 'Invent' the Cherry Tomato?" *Gastronomica: the Journal of Critical Food Studies* 16(2):1-11.

Wexler, A. (2015). "A pragmatic analysis of the regulation of consumer transcranial direct current stimulation devices in the United States." *Journal of Law and the Biosciences,* 2 (3): 669-696. (Selected for peer commentary)

Kerr, CE, Jones, SR, Wan, Q, Pritchett, DL, Wasserman, RH, **Wexler, A,** Villanueva, JJ, Shaw, JR, Lazar, SW, Kaptchuk, TJ, Littenberg, R, Hämäläinen, MS, & Moore. CI. (2011). "Effects of mindfulness meditation training on anticipatory alpha modulation in primary somatosensory cortex." *Brain Research Bulletin*, 85, 96-103.

Saxe, R. & Wexler, A. (2005). Making sense of another mind: the role of the right temporo-parietal junction. *Neuropsychologia*, 43(10), 1391-1399.

Book Chapters

Coates Mcall, I & Wexler, A. (2020). "Peering into the Mind? The Ethics of Consumer Neuromonitoring Devices," in I. Bárd. & E. Hildt (Eds.) *Ethical Dimensions of Commercial and DIY Neurotechnologies* (pp. 1-22), Elsevier.

Wexler, A. (2020). "Do-It-Yourself and Direct-to-Consumer Neurostimulation." in I. Bárd. & E. Hildt (Eds.) *Ethical Dimensions of Commercial and DIY Neurotechnologies* (pp. 127-156), Elsevier.

Wexler, A, & Reiner, P. (2017). "Home Use of tDCS: From Do-it-Yourself to Direct-to-Consumer," in L. S. M. Johnson & K. S. Rommelfanger (Eds.), *Routledge Handbook of Neuroethics* (pp. 271–284).

Authored Articles for the General Public

The Trouble with Calling Health Care Workers "Heroes"-Boston Globe, April 10, 2020

<u>Five ways to address the challenges of direct-to-consumer health products</u> (with Steven Joffe)— STAT, April 2, 2019

The New Face of Medical Advice: the Online Pregnancy Forum-Washington Post, July 10, 2018

Zapping their Brains at Home - The New York Times, July 22, 2016

<u>Consumer Neurotechnology: New Products, More Regulatory Complexity</u> —The Neuroethics Blog, June 14, 2016

At Tribeca, 'Vaxxed' Gets Axed and Science Wins (For Now) --- Undark, March 27, 2016

"Dialing up Your Brain Power" -Slate, December 18, 2015

Invited Talks

January 28, 2020: "Ethics and Privacy: Patient Data in the Digital Age" in Anticipating Ethical Concerns in a New Era of Neuroscience, UCSF Weill Neuroethics Symposium, UCSF Weill Institute for Neurosciences, San Francisco, CA.

January 24, 2020: "Ethical and Regulatory Aspects of Emerging Neurotechnology," Department of Biomedical Engineering, University of Utah.

October 16, 2019: "Studying Users of Direct-to-consumer Neurotechnology and Orthodontics," in Reconceptualizing the Challenges of Direct-to-Consumer Health Products," Banbury Center, Cold Spring Harbor, NY.

July 9, 2019: "Human 2.0: Hacking Brains and Enhancing Minds," Impact Speaker, Arkansas Governor's School, Arkansas Tech University, Russellville, AR.

May 7, 2019: "Oversight of Direct-to-consumer Neurotechnologies," SharpBrains Virtual Summit: The Future of Brain Health, www.sharpbrains.com.

April 12, 2019: "Neuroethics: An Essential Partner to Enhance Neuroscience," Fifth Annual BRAIN Initiative Investigators Meeting, Washington, DC.

September 22, 2018: "Brain Stimulation Tech and Cognitive Enhancement Communities." Human Augmentation 101, BDYHAX Convention East, Protohaven, Pittsburgh, PA.

February 5, 2018: "Direct-to-Consumer Brain Stimulation: Ethical and Regulatory Issues." Workshop: The Evolving Phenomenon of Direct-to-Consumer Neuroscience, Banbury Center, Cold Spring Harbor, NY, Feb 4-6, 2018. January 24, 2018: "Outside the Ivory Tower: the Use of Noninvasive Brain Stimulation in Do-it-Yourself (DIY) Contexts and 'Brain Wellness' Centers," Centre for Neurotechnology, Imperial College, London UK.

January 22, 2018: "Do-it-yourself Psychiatry," Department of Psychiatry/Wellcome Trust Centre for Ethics & Humanities, Oxford University, Oxford, UK.

December 5, 2017: "The Future of tDCS: Ensuring Appropriate Use by Clinicians, Patients, and Consumers," SharpBrains Virtual Summit: Brain Health and Enhancement in the Digital Age, www.sharpbrains.com.

November 1, 2017: "Regulation and DIY Use of Transcranial Stimulation," Beth Israel Medical Center, Boston, MA.

October 26, 2017: "Transcranial Stimulation: Invasiveness and Analysis Risk," Workshop: Ethical Issues in Invasive and Non-invasive Neural Devices in Humans, NIH, Department of Bioethics, Bethesda, MD.

May 25, 2017: "Ethics, Regulations, and Public Policy in Cognitive Enhancement." Workshop: Behavioral Interventions to Enhance Cognition: Toward a Consensus on Methods, Boston, MA, May 24-25, 2017.

March 27, 2017: "Re(current) Issues in Neuroethics: The Importance of Looking to the Past to Understand the Future." Brain Awareness Week Lecture, Northeastern University, Boston, MA.

January 25, 2017: "Do-it-yourself electrical brain stimulation: implications for ethical considerations and regulatory proposals." Department of Cognitive Science, University of California San Diego, San Diego, CA.

January 24, 2017: "Recurrent themes in the home use of electrical stimulation: tDCS and the medical battery." Department of History, University of California San Diego, San Diego, CA.

December 28, 2016: "Seeding Controversy: Did Israel Invent the Cherry Tomato?" Limmud Conference, Birmingham, UK.

December 6, 2016: "Do it Yourself Brain Stimulation and Citizen Science," American Association for the Advancement of Science (AAAS), Neuropolicy Affinity Group, Washington, DC.

November 3, 2016: "Do It Yourself Brain Stimulation: Innovation by Independent Communities" Workshop: Innovation Lab Workshop, MIT, Cambridge, MA.

September 7, 2016: "Ethical and Legal Aspects of Transcranial Stimulation," Practical Course in Transcranial and Magnetic Electric Stimulation, German Neuroscience Society, Göttingen, Germany.

September 6, 2016: "Legal and Regulatory Aspects of Transcranial Direct Current Stimulation." Workshop: Neurostimulation Safety Conference, Max Planck Institute, Göttingen, Germany, September 6-7, 2016.

January 21, 2016: "Beyond the FDA: the Regulation of Noninvasive Brain Stimulation." Workshop: Human Performance Enhancement Workshop, American Academy of Arts and Sciences, Cambridge, MA, January 21-22, 2016. November 20, 2015: "The Regulation of Noninvasive Brain Stimulation Devices." Workshop: FDA Neurodiagnostics and Non-Invasive Brain Stimulation Medical Devices Workshop, FDA, White Oak Campus, Silver Spring, MD, November 19-20, 2015. Webcast recording available <u>here</u>.

November 5, 2015: "From Do-it-Yourself to Direct-to-Consumer: the Regulation of Consumer Noninvasive Brain Stimulation Devices," Center for Neuroscience and Society, University of Pennsylvania. Video recording available <u>here</u>.

October 21, 2015: "Brain Hacking to Boost Your A-Game: The Ethics of Cognitive Enhancement in Gaming and Competition," Harvard Center for Bioethics, Harvard University. Video recording available <u>here</u>.

October 6, 2015: "Sparking Controversy: The Contested Use of Electrical Brain Stimulation," Bakken Museum of Electricity and Life, Minneapolis, MN.

September 21, 2015: 'Practices of Do-It-Yourself Electrical Brain Stimulation: Implications for Ethics and Regulation," Citizen Science Working Group, National Institute of Health (NIH).

March 4, 2015: "Practices of Do-It-Yourself Electrical Brain Stimulation: Implications for Ethics and Regulation," Pellegrino Center for Clinical Bioethics, Georgetown University, Washington DC.

Jun 27, 2011: panelist, "Picture This: The Art and Craft of Science Storytelling in Film," World Conference of Science Journalists, Doha, Qatar.

Organized/Chaired Conference

October 14-16, 2019: "Reconceptualizing the Challenges of Direct-to-Consumer Health Products," co-organized and co-chaired with Tim Caulfield and Leigh Turner. Banbury Center, Cold Spring Harbor, NY.

February 4-6, 2018: "The Evolving Phenomenon of Direct-to-Consumer Neuroscience," coorganized and co-chaired with Peter Reiner. Banbury Center, Cold Spring Harbor, NY.

Invited Panelist

August 2, 2019: "Neuroethics: Historical Roots to Emerging Technology," Center for Neuroscience and Society 10 Year Anniversary Reunion, Philadelphia, PA.

December 5, 2018: Existential Medicine: Augmented Humanity, JLabs, New York, NY; video recording available <u>here</u>.

January 23, 2018: Brain 2.0: A Neuroenhancement Discussion Panel, Imperial College Business School, London, UK, video recording available <u>here</u>.

Invited Moderator

October 17, 2019: "Preclinical Interventions in Psychiatric and Neurological Disorders," International Neuroethics Society Annual Meeting, Chicago, IL. August 3, 2016: Panel Moderator: "Selective vs. Therapeutic Enhancement," Human X Design Conference, Paley Center for Media, New York, NY.

Conference Talks

"Neuroenhancement for Sale: Assessing the Website Claims of Neurofeedback Providers." 15th World Congress of Bioethics [virtual], June 19-21, 2020. Presented by Ashwini Nagappan.

**cancelled due to COVID-19

"Direct-to-consumer neurotechnology: ethical and regulatory challenges," Eighth Annual Conference on Governance of Emerging Technology, Arizona State University, Phoenix, AZ, May 27-28, 2020.

"Ethical Issues in Intraoperative Neuroscience Studies: Assessing Subjects' Understanding of Study Purpose and Motivations for Participation." American Association of Neurological Surgeons Annual Meeting, April 25, 2020. *Presented by Nikhil Sharma*.

"Do-it-yourself (DIY) Medicine and Science: Ethical and Regulatory Issues," presenter, moderator, and session organizer, American Society for Bioethics and Humanities, Pittsburgh, PA, Oct 26, 2019.

"The future of maternal healthcare: online pregnancy forums & the transformation of the patientphysician relationship," American Society for Bioethics and Humanities, Pittsburgh, PA, Oct 26, 2019.

"Mind-reading or misleading? Assessing direct-to-consumer electroencephalography (EEG) devices marketed for wellness and their ethical and regulatory implications." Selected for oral presentation, International Neuroethics Society Annual Conference, San Diego, CA, November 2, 2018.

"Ethics of Direct-to-Consumer Brain Technology," presenter, moderator, and session organizer, American Society for Bioethics and Humanities, Anaheim, CA, Oct 18-21, 2018.

"Ethics of Do-it-Yourself Medicine," American Society for Bioethics and Humanities, Anaheim, CA, Oct 18-21, 2018.

"Pushing the boundaries of 'off-label' medical devices: an empirical study of the use of transcranial direct current stimulation (tDCS) in clinical settings." Ethics of Neuroscience and Neurotechnology Session, International Neuroethics Society Annual Conference, Washington DC, November 10, 2017.

"The Home Use of Transcranial Direct Current Stimulation: Separating Evidence from Speculation." Neuroethics Affinity Group, American Society for Bioethics and Humanities, Kansas City MO, October 21, 2017.

Guest lectures & teaching within the University of Pennsylvania

[forthcoming] November 4, 2020: Ethics of Intracranial Intraoperative Research. Research Ethics and Policy Series, University of Pennsylvania.

June 23, 2020: "Neuroethics and neurohype," Guest lecture for "Neuroethics," course for the Masters of Bioethics Program, University of Pennsylvania.

**cancelled due to COVID-19

April 12, 2020: Ethics of direct-to-consumer neurotechnology. Center for Neuroscience and Society Public Lecture Series, University of Pennsylvania.

March 4, 2020: "Social Media and the Patient-Physician Relationship," Guest Lecture for "Social Media, Healthcare and Medical Ethics" course for the Masters of Bioethics Program, University of Pennsylvania.

January 7, 2020: "Pregnancy and health in the age of the Internet: a content analysis of online 'birth club' forums." Grand Rounds, Department of Obstetrics and Gynecology, University of Pennsylvania.

November 19, 2019: "DIY and Direct-to-Consumer Neurotechnology," Guest Lecture, Neuroscience and Society Undergraduate Course, University of Pennsylvania.

May 15, 2019: "Do-it-yourself and direct-to-consumer medicine," Department of Medical Ethics External Advisory Board Meeting, Perry World House, University of Pennsylvania.

May 9, 2019: "Do-it-yourself and Direct-to-consumer medicine and science," Health Language Processing Lab Monthly Gathering, University of Pennsylvania.

April 29, 2019: "Do-it-yourself and direct-to-consumer neurotechnology," Penn Memory Center Didactic Talk, University of Pennsylvania.

April 24, 2019: "Neuroethics," guest lecture, Introduction to Bioethics (undergraduate class, University of Pennsylvania).

September 21, 2018: "Do-it-yourself Psychiatry," Psychiatry Residency Guest Lecture, University of Pennsylvania Medical School, Philadelphia, PA.

July 3, 2018: "Do-it-yourself brain stimulation: implication for ethics and regulation," Neuroethics Course Guest Lecture, University of Pennsylvania, Philadelphia, PA.

June 8, 2018: "Bacteriophages and Compassionate Use," Medical Intensive Care Unit Residency Guest Lecture, University of Pennsylvania.

Guest lectures & teaching outside the University of Pennsylvania

October 16, 2019: "Neuroethics," graduate student seminar, Cold Spring Harbor Laboratory, Cold Spring Harbor, NY.

June 27, 2019: "Regulation and Do-it-yourself Use of Transcranial Electrical Stimulation," Beth Israel Medical Center, Boston, MA.

January 29, 2018: "Non-linear career paths," Global Education and Career Development, MIT.

December 7, 2017: "Do-it-yourself Psychiatry," Psychiatry Residency Guest Lecture, University of Pennsylvania Medical School, Philadelphia, PA.

November 28, 2017: "Alternative pathways for neuroscience undergraduates," Neuroscience and Law class, Virginia Polytechnic Institute.

Invited Workshops

November 1, 2017. Who Wins and Who Loses: The Distribution of Regulatory Impacts in the United States. University of Pennsylvania Law School, Philadelphia, PA.

May 21-24, 2017: Ethical Guidelines for Neurotechnology, Neurotechnology Center, Columbia University, New York, NY.

Conference Posters

Wexler, A., Nagappan, A., Beswerchij, A., and Choi, R. Challenging Dental Authority: Insights into Useres of At-Home Teeth Aligners. 15th World Congress of Bioethics [virtual], June 19-21, 2020.

Wexler, A, Choi, R., Ramayya, A.G., Sharma, N., McShane B.J., Buch, L.Y., Love Y. Buch, Donley-Fletcher, M.P., Gold, J.I., Baltuch, G.H., Klein, E., Goering, S. Intraoperative Neuroscience Research: An Empirical Assessment of Ethical Concerns Regarding Undue Influence and Informed Consent. NIH 6th Annual BRAIN Investigators Meeting [virtual], June 1-2, 2020.

**cancelled due to COVID-19

Anna Wexler, Anahita Davoudi, Davy Weissenbacher, Rebekah Choi, Karen O'Connor, Holly Cummings, Graciela Gonzalez-Hernandez. "Pregnancy and health in the age of the Internet: a content analysis of online "birth club" forums." Society for Academic Specialists in General Obstetrics and Gynecology (SASGOG) Annual Meeting, April 23, 2020, Seattle, Washington.

Wexler, Anna, Nagapanna, Ashwini, and Kopyto, Deena. "Neuroenhancement for Sale: Assessing the Website Claims of Neurofeedback Providers." International Neuroethics Society Annual Meeting, Chicago, IL October 17-18, 2019. *Selected for oral abstract presentation and travel stipend.

Wexler, Anna and Fitz, Nicholas. "Who Actually Uses Non-Invasive Brain Stimulation Technologies, And Why? A Study Of Consumer Transcranial Direct Current Stimulation (tDCS) Device Users."* International Neuroethics Society Annual Meeting, San Diego, CA, November 10-11, 2016 *Winner of Elsevier Prize for Top Poster

Wexler, Anna. "Re(current) Issues in Neuroethics: The Importance of Looking to the Past to Understand the Future."

- Neuroethics Network, Paris, France, June 29-July 1, 2016
- International Neuroethics Society Annual Meeting, San Diego, CA, November 10-11, 2016

Wexler, Anna. "A Pragmatic Analysis of the Regulation of Consumer Transcranial Direct Current Stimulation (tDCS) Devices in the United States."* International Neuroethics Society Meeting, Chicago, IL, October 15-16, 2015.

*Selected as top abstract for publication in American Journal of Bioethics - Neuroscience.

Treene, Lauren, Wexler, Anna, and Giordano, James. "Toward an integrative database of/for transcranial electrical stimulation: Defining need, and positing approaches, benefits and caveats." International Neuroethics Society Meeting, Chicago, IL, October 15-16, 2015.

Wexler, Anna. "Understanding the practices of the do-it-yourself brain stimulation community: implications for regulatory proposals and ethical discussions."

- International Neuroethics Society Annual Meeting, Washington DC, November 14, 2014
- New York City Neuromodulation Conference, New York, NY, January 9-11, 2015
- Montreal Neuroethics Conference for Young Researchers, Montreal, QC, Canada, April 17, 2015.

Wexler, Anna. "What is a Medical Device? The Implications of the Food and Drug Administration's Definition for the Regulation of Consumer Neurotechnology" Neuro-interventions and the Law Conference: Regulating Human Mental Capacity, Atlanta, GA, September 12-14, 2014.

Khalsa S.S., Rudrauf, D., Wexler, A., Naqvi N.H., Damasio, A.R., & Tranel, D. (2006). Looking within: does meditative experience enhance interoceptive awareness? Cognitive Neuroscience Society Conference, 2006.

Grants & Funding Awards

NSF RAPID: Assessing Ethical Challenges in Conducting Do-it-yourself (DIY) Science During the COVID-19 Pandemic (Role – Principal Investigator; Co-PI Lisa Rasmussen; \$149,495)	2020-2021
NIH Office the Director Early Independence Award (DP5), Do-It-Yourself and Direct-to-Consumer Medicine and Science: Assessing the Public Health Issues and Regulatory Gaps (Role - Principal Investigator; \$2,012,500)	2018-2023
NIH BRAIN Initiative Neuroethics Supplement, Ethical Issues in Intraoperative Neuroscience Research (Role – Supplement lead; PIs Baltuch & Gold; \$145,228)	2018-2020

TEACHING AND MENTORING

Teaching

Massachusetts Institute of Technology Teaching assistant, "Foundations of Internet Policy"	Fall 2014
Massachusetts Institute of Technology Teaching assistant, "Bioethics"	Spring 2014
Massachusetts Institute of Technology Teaching assistant, "Ethics and the Law on the Electronic Frontier"	Fall 2013

Mentoring

Post-doctoral fellows: Louiza Kalokairinou (2020-present; primary mentor); Moira Kyweluk (2020-present; scholarship oversight committee)

Graduate students: Ashwini Nagappan, Master's of Bioethics (2019-2020)

Undergraduate students: Deena Kopyto (2019-present)

SERVICE

Reviewing

Journals: Journal of Medical Ethics, Neuroethics, Journal of Bioethical Inquiry, AJOB – Empirical Bioethics, Journal of Cognitive Enhancement, AJOB-Neuroscience, Narrative Inquiry in Bioethics, Journal of Law and the Biosciences, iScience, Mindfulness

Other: UK Parliament Office of Science and Technology (2019); German Federal Ministry of Education and Research (2020)

Editorial Positions

Associate Editor, Journal of Cognitive Enhancement	2019-
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Committees

Co-Chair, International Neuroethics Society 2020 Program Committee	2020
Member, International Neuroethics Society 2020 Program Committee	2019
Neuroethics Affinity Group Leader, American Society of Bioethics & Humanities	2018-2020
International Neuroethics Society Student/Post-doc Committee, member	2018
MIT Institutional Review Board, member	2014-2015
MIT Committee on Intellectual Property, member	2014-2015
MIT Educational Counsel, member	2009-2011

HONORS/AWARDS

Stanley Jackson Prize (best article in J History of Medicine in last three years)	2018
Asylum: International Jewish Artist Retreat (selected as fellow)	2013
Robert A. Boit Essay Prize, First Place	2007
DeWitt Wallace Prize for Science Writing for the Public, Second Place	2007
Walle Nauta Award for Outstanding Research	2007
Hans-Lukas Teuber Award for Outstanding Academics	2007
Austin Kelly III Essay Prize, Second Place	2007
Robert A. Boit Manuscript Prize, First Place	2005
Robert A. Boit Essay Prize, First Place	2004

AFFILIATIONS

Course Faculty, Introduction to Transcranial Electric Stimulation (tES) in Neuropsychiatri	c
Research, Beth Israel Deaconess Medical Center	2017-
Neuroethics Women (NEW) Leaders	2016-
American Society for Bioethics & Humanities	2017-
International Neuroethics Society, member	2014-
Sattya Media Arts Collective (board member)	2013–2014

Israel Association of Science Communicators (member)	2010-2012
Explorers Club (member)	2007-2009
Sigma Xi, the Scientific Research Society (elected to membership)	2007-2008

MEDIA AND PUBLIC ENGAGEMENT

News Media Coverage of Research

Can Zapping Your Brain Really Make You Smarter?—JSTOR Daily, November 27, 2019

The flimsy promises of brain wearables—Axios, June 20, 2019

Do devices that monitor or zap the brain live up to their claims? - The Scientist, June 18, 2019

<u>'A cavalier approach': Experts urge the companies behind brain wearables to rein in their claims</u>—STAT, May 28, 2019

Direct-to-consumer neurotechnologies lack sufficient oversight, say researchers—The Ubyssey, March 29, 2019

Devices that monitor your brain and mental health might not actually work—Georgia Straight, January 25, 2019

<u>Researchers call for oversight of burgeoning brain stimulation market</u>—Philadelphia Inquirer, January 17, 2019

The Next Human: Brain and Body as Connected Devices—Massive Science, December 27, 2018

Women Fare Well in This Year's round of NIH High-Risk Rewards-Science, October 4, 2018

Meet the B.C. man who uses body-modifying technology to enhance physical capabilities—CBC, September 23, 2018

The Truth About Electrical Brain Stimulation — Lifehacker, January 18, 2018

No, Cherry Tomatoes Aren't an Israeli Invention --- Ha'aretz, December 5, 2017

Do DIY Brain-Booster Devices Work? ---Scientific American, January 10, 2017

Students Zap Their Brains for a Boost, for Better or for Worse — NPR All Tech Considered, January 7, 2017

Non-Surgical Brain Stimulation Shows Promise, but Unknowns Remain — US News and World Report, August 30, 2016

<u>Regulation of Brain-stimulating Devices Unclear as Popularity Grows in US</u> —Voice of America, August 29, 2016

Do-it-yourself Brain Stimulation has Hidden Risks --- Reuters, July 22, 2016

The Contentious History of the Cherry Tomato -Smithsonian, June 20, 2016

Who Invented the Cherry Tomato? -The Atlantic, June 14, 2016

Brain Stimulation and You: How Does it Work and Can it Really Juice Up Your Thinking Cap? — Medical News Daily, April 8, 2016

"Stimulus Plan?" —MIT News, December 18, 2015

"Weird World of Brain Hacking" --- Wall Street Journal, November 10, 2015

Radio/Podcast Coverage of Research

<u>Neuroethics Today podcast: Direct-to-Consumer Neurotechnology (Season 2, Episode 3)</u> Neuroethics Today, May 1, 2020

BBC Five interview with Stephen Nolan-BBC 5 Live, August 5, 2019

Stimulate Your Brain?—Brain Inspired, November 29, 2018

DIY Diagnosis -Big Picture Science, August 29, 2016

Who Invented the Cherry Tomato? ---Gastropod, June 2016

DIY tDCS Podcast: Regulating tDCS -DIYtDCS, March 13, 2016

<u>Electrical Brain Stimulation Moves from Lab to Home, Experts Wary</u> —The Current, Canadian Broadcasting Corporation (CBC), October 13, 2015

Television Appearances

Health Care Workers and "Heroes"—KTVU Oakland, April 22, 2020

Zapping Your Brain Into Gear - ABC Local News, February 16, 2017

Public Engagement

***cancelled due to COVID-19* March 26, 2020: Moderator, post-screening discussion of Amadeus with Paul Zaentz and Martha Farah, Bioethics Film Festival, Philadelphia, PA.

March 2, 2020: Panelist, post-show bioethics discussion following theater production of *Babel*, Theatre Exile, Philadelphia, PA.

March 26, 2019: Moderator, post-screening discussion of M*A*S*H with Dr. Stephen Xenakis & Dr. Herman Beavers, Bioethics Film Festival, Philadelphia, PA.

October 7, 2017: "Hacking the Brain," StudyHall (comedy improv show featuring a guest academic scholar), Philly Improv Theater, Philadelphia, PA.

December 12, 2013: "A Crucial Choice," Story Collider (live storytelling featuring scientists and academics), Oberon Theater, Cambridge MA.

OTHER EXPERIENCE

Film Production

UNORTHODOX (2013) Co-Director, Co-Producer, Co-Writer, Co-Editor

Feature-length, 90 minute personal documentary film about rebellious Modern Orthodox American Jewish teenagers who spend a year studying in seminary in Israel.

- Premiered at the Institute for Contemporary Art in Boston (Nov 2013) as part of the Boston Jewish Film Festival and played at over a dozen film festivals and venues in the United States, United Kingdom, Switzerland, and Israel

- Recipient of nine grants

- Successful Kickstarter campaign (2012)

- Two-dozen in-person appearances and Q&A sessions

- Available on digital outlets (iTunes, Hulu, Amazon)