

Anna Wexler, Ph.D.

Postdoctoral Fellow in Advanced Biomedical Ethics
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EDUCATION

University of Pennsylvania Aug 2017 –
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) Program. 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

PRIOR WORK EXPERIENCE/APPOINTMENTS

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

Rafael Yuste, Sara Goering, Guoqiang Bi, Jose M Carmena, Adrian Carter, Joseph J Fins, Phoebe Friesen, Jack Gallant, Jane E Huggins, Judy Illes, Philipp Kellmeyer, Eran Klein, Adam Marblestone, Christine Mitchell, Erik Parens, Michelle Pham, Alan Rubel, Norihiro Sadato, Laura Specker Sullivan, Mina Teicher, David Wasserman, **Anna Wexler**, Meredith Whittaker, Jonathan Wolpaw (2017). Four ethical priorities for neurotechnologies and AI. *Nature News*, 551(7679): 159-163.

A. Antal, I. Alekseichuk, M. Bikson, J. Brockmüller, A.R. Brunoni, R. Chen, L.G. Cohen, G. Dowthwaite, J. Ellrich, A. Flöel, F. Fregni, M.S. George, R. Hamilton, J. Haueisen, C.S. Herrmann, F.C. Hummel, J.P. Lefaucheur, D. Liebetanz, C.K. Loo, C.D. McCaig, C. Miniussi, P.C. Miranda, V. Moliadze, M.A. Nitsche, R. Nowak, F. Padberg, A. Pascual-Leone, W. Poppendieck, A. Priori, S. Rossi, P.M. Rossini, J. Rothwell, M.A. Rueger, G. Ruffini, K. Schellhorn, H.R. Siebner, 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, Anna. (2017). "The Social Context of Do-It-Yourself Brain Stimulation: Neurohackers, Biohackers, and Lifehackers." *Frontiers in Human Neurosciences*, 11, <https://doi.org/10.3389/fnhum.2017.00224>.

Wexler, Anna. (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.

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

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

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

Book Chapters

Wexler, Anna, & Reiner, Peter. "Home Use of tDCS transitions from Do-it-Yourself to Direct-to-Consumer." Routledge *Handbook of Neuroethics* (summer 2017).

Book Reviews

Wexler, Anna. (2016). Review of *The Language of Food: A Linguist Reads the Menu* by Dan Jurafsky. *Gastronomica: the Journal of Critical Food Studies* 16(1):107.

Authored Articles for the General Public

[Zapping their Brains at Home](#) *The New York Times*, July 22, 2016

[Consumer Neurotechnology: New Products, More Regulatory Complexity](#) *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

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 on "Ethical Issues in Invasive and Non-invasive Neural Devices in Humans," NIH, Bethesda, MD.

October 17, 2017: "Pushing the boundaries of off-label use: an empirical study of the use of tDCS devices in clinical settings," Department of Medical Ethics & Health Policy, University of Pennsylvania, Philadelphia, PA.

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

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), Washington, DC

November 3, 2016: "Do It Yourself Brain Stimulation: Innovation by Independent Communities" 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" Neurostimulation Safety Conference, Max Planck Institute, Göttingen, Germany.

August 3, 2016: Panel Moderator: "Selective vs. Therapeutic Enhancement," Human X Design Conference, Paley Center for Media, New York, NY.

January 21, 2016: Invited panelist, Human Performance Enhancement Workshop (panel title: "Regulation of invasive and noninvasive enhancements: safety/efficacy, security, and privacy"). American Academy of Arts and Sciences, Cambridge, MA.

November 20, 2015: FDA Workshop: “Neurodiagnostics and Non-Invasive Brain Stimulation Medical Devices Workshop,” FDA White Oak Campus, Silver Spring, MD.
Webcast recording available [here](#).

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 [here](#).

October 21, 2015: “Brain Hacking to Boost Your A-Game: The Ethics of Cognitive Enhancement in Gaming and Competition” (Panel Discussion with Prof. Julian Savulescu & Prof. Aaron Kesselheim), Harvard Center for Bioethics, Harvard University. Video recording available [here](#).

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.

Conference Talks & Presentations

“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.

Conference Posters/Abstracts

1. Wexler, Anna. “Pushing the boundaries of “off-label” medical devices: an empirical study of the use of transcranial direct current stimulation (tDCS) in clinical settings.” LawPaLooza Conference, Stanford Law School, April 21-22, 2017.

2. 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

3. 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

4. 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*.

5. 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.

6. 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.

7. 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.

8. 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 and Funding Awards

MIT Graduate Student Council Travel Fund Grant 2016

Bakken Museum of Electricity and Life (Minneapolis, MN), Travel Grant 2015

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.

October 26, 2017. Ethical Issues in Research with Invasive and Non-invasive Neural Devices in Humans. NIH, Bethesda, MD.

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

September 6-7, 2016: Neurostimulation Safety Workshop, Max Planck Institute, Göttingen, Germany.

January 21-22, 2016: Human Performance Enhancement Workshop, American Academy of Arts and Sciences, Cambridge, MA.

November 19-20, 2015: Food and Drug Administration (FDA) Neurodiagnostics and Non-Invasive Brain Stimulation Medical Devices Workshop, FDA White Oak Campus, Silver Spring, MD

Select News Media Coverage of Research

[The Strange Victorian Fashion of Self-Electrification](#)

BBC | February 15, 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

[Regulation of Brain-stimulating Devices Unclear as Popularity Grows in US](#)

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?”](#) (profile of my research)

MIT News | December 18, 2015

[“Weird World of Brain Hacking”](#)

Wall Street Journal | November 10, 2015

Radio/Podcast Coverage of Research

[DIY Diagnosis](#)

Big Picture Science | August 29, 2016

[Caution, May Backfire: Neuroscientists’ Open Letter to DIY Brain Hackers](#)

WBUR | July 11, 2016

[Who Invented the Cherry Tomato?](#)

Gastropod | June 2016

[DIY tDCS Podcast: Regulating tDCS](#)

DIYtDCS | March 13, 2016

[Electrical Brain Stimulation Moves from Lab to Home, Experts Wary](#)

The Current, Canadian Broadcasting Corporation (CBC) | October 13, 2015

Television Appearances

[Zapping Your Brain Into Gear](#)

ABC Local News | February 16, 2017

Teaching Experience

Massachusetts Institute of Technology

Fall 2014

Teaching assistant, “Foundations of Internet Policy”

Massachusetts Institute of Technology

Spring 2014

Teaching assistant, “Bioethics”

Massachusetts Institute of Technology

Fall 2013

Teaching assistant, “Ethics and the Law on the Electronic Frontier”

SERVICE

MIT Institutional Review Board (COUHES), member

2014-2015

MIT Committee on Intellectual Property, member

2014-2015

Planned Parenthood, volunteer

2014-2015

MIT Educational Counsel, member

2009-2011

OTHER HONORS/AWARDS/AFFILIATIONS

International Neuroethics Society, student member

2013-2017

Sattya Media Arts Collective (board member)

2013–2014

Asylum: International Jewish Artist Retreat (fellow)

2013

Israel Association of Science Communicators (member)

2010–2012

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

Explorers Club (elected to membership)

2007-2009

Sigma Xi, the Scientific Research Society (elected to membership)

2007-2008

Robert A. Boit Manuscript Prize, First Place

2005

Robert A. Boit Essay Prize, First Place

2004

OTHER EXPERIENCE

Select 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)
- Press coverage in Boston Globe, Times of Israel, The Forward, and others