

Implanting Change: The Ethics of Neural Prosthetics

CONFERENCE PROGRAM

SESSION 1, Sunday Evening, Aug 26 7pm-10pm.

7:00-7:05 Welcome: Steven Schiff

What is the state of the art in neural prosthetics, and what are the most pressing ethical issues for clinician-researchers?

7:05-7:10 Session Chair: Paul Ford

Part One: State of the Art for Neural Prosthetics and Stimulators

In order to have an educated discussion about the ethics, we start with presentations surveying current neural implant research.

7:10-7:40 Neural Interfaces: Output: Reading, Interpreting Intention (Leigh Hochberg)

7:40-8:10 Deep Brain and Cortical Stimulation (Milind Deogaonkar)

Part Two: Ethical Dilemmas From The Clinician-researcher Perspective

Many ethical issues that arise in the “trenches” of neural implant research may not be apparent to the non-researcher. Further, the researcher may also not fully appreciate the implications of choices. Five leading researchers will briefly describe their neural implant research followed by several of the most troubling ethical challenges in their particular research endeavors.

8:10-8:30 Brain Stimulation for OCD/Depression (Benjamin Greenberg)

8:30-8:50 Brain Stimulation for Epilepsy (Imad Najm)

8:50-9:10 Neural Interfaces: Brain-robot interfaces (Jaimie Henderson)

9:10-9:30 Neural Interfaces: Memory/Enhancement (Lisa Marshall)

9:30-9:50 Imaging: From seeing to implanting (Helen Mayberg)

9:50-10:00 Part Three: Response and Commentary

SESSION 2, Monday Morning, August 27 9am-noon

Neural prosthetics: Therapeutic Risks, Benefits, Decisions and Control

Session Chair, Jonathan Marks

9:00–9:10 Introduction to the Panel and Panelists

Part One: Historical Perspectives and Risk-Benefit Studies

9:10-9:40 Neural Prosthetics: Historical Reflections on an Emerging Therapeutic Agenda (Joseph Fins)

9:40-10:00 Risks Associated with Electrode Implantation and Electrical Stimulation (Alim Louis Benabid)

10:00-10:20 Risks and Benefits of Invasive Neurotherapeutic Interventions: Perspectives of Patient-Subjects (Scott Kim)

10:20–10:40 Discussion

10:40-11:00 **Poster Session with Coffee Break**

Part Two: Personal Perspectives, Decisions and Control

11:00-11:20 My Experience with Neuromodulation: the patient who knew too much (Ken Curley)

11:20-11:35 How much device control for subject/patient? (Paul Ford)

11:35-11:45 Neural Prosthetics in the Decisionally-Impaired and the Risks of Therapeutic Failure (Stacey Tovino)

11:45-12:00 Discussion

SESSION 3, Monday Afternoon, August 27 2pm-5pm.

What are the ethical, legal, economic and social limits of neural prosthetics, and where are the boundaries of medical therapy?

2:00-2:05 Open Session Welcome: Steven Schiff

2:05-2:10 Session Chair, Isaac Mwase

Part One: Economic and social limits of medical use of brain stimulation

This segment is concerned with the distribution of scarce research and therapeutic dollars and what is justified use of neural prosthetic knowledge. Discussions will be encouraged on topics that include social behavior, including coercion and aggression that becomes medicalized.

2:10-2:30 Who Pays? (Kristen M. Hessler)

2:30-2:50 Virtues and Vices in Neural Prosthetics Research (Isaac M. T. Mwase)

2:50-3:00 Discussion

Part Two: Other ethical and legal perspectives

3:00-3:20 Neural Prosthetics Research and Non-therapeutic Applications: International Human Rights Perspectives (Jonathan Marks)

3:20-3:30 Discussion

3:30-3:50 Coffee Break

3:50-4:10 Legal Constraints - Real and Potential - on Neural Prosthetics (Henry Greely)

4:10-4:30 Special Populations: Perspective from the Inside and Outside (Kenneth C. Curley)

4:30-4:50 From Therapy to Enhancement (Martha Farah)

4:50-5:00 Discussion

Monday Evening – reception and dinner.

5:00-6:00 Reception

6:00-8:00 Dinner

8:00-10:00 After dinner breakout sessions. Topics include:

- Special ethical considerations for pediatric patients.
- Special ethical considerations for psychiatric patients.
- Cultural and religious responses to neural prosthetics.
- Public understanding: neural prosthetics in the media and science fiction

SESSION 4, Tuesday morning, August 28

9:00-9:40 Plenary talk: Nicholas Schiff

"Behavioral facilitation through central thalamic stimulation in the severely injured brain"

9:40-9:50 Discussion

Summing up and putting in perspective

9:50-9:55 Session chair: Martha Farah

9:55-10:15 Breakout group summaries

10:15-10:30 Coffee Break

SESSION 4, Tuesday morning, August 28 (CONTINUED)

Discussion panels

Each panel is intended as an occasion to review key facts and concepts that arose in the previous days' sessions, as well as to identify important points that may have been missed in earlier discussions. Drawing on the previous days' presentations and their own perspectives, panelists will weigh in on three issues concerning the future of neural implants in social and ethical context.

10:30-11:00 Panel 1 – 5 years, 15 years and 50 years: Forecasting future capabilities, with an eye on their ethical implications. An effective societal and ethical response to neural implant technology requires an understanding of what is likely to be possible in a given time frame. The first panel will focus on the likely future of neural implant technologies, to help separate immediate from longer-term future ethical challenges and to separate realistic projections from science fictionesque projections. Panel chair: TBA

11:00-11:30 Panel 2 – Empirical issues, policy/legal issues and moral issues: Dividing the labor in the ethical development of neural implant technology. Discussion of complex bioethical issues can easily bog down when distinctions between different types of problem become blurred. The second panel will focus on the diverse types of problem that accompany the expanded use and development of neural implants, distinguishing those that call for more research, those that call for policy and legal interventions, and those that call for moral analysis. Panel chair: TBA

11:30-12:00 Panel 3 – Familiar and novel ethical challenges of neural implants: Identifying useful precedents, exploring new neuroethical territory. Many of the ethical issues surrounding neural implants have historical precedents in other realms of medicine and biotechnology, and rather than reinvent the wheel we should identify these precedents. Neural implants also raise some unique new issues. The third panel will seek precedents, discuss their applicability, and characterize the novel neuroethical challenges associated with neural implants. Panel chair: Martha Farah

Meeting Adjournment 12 pm Tuesday, August 28