Introduction

Neuroethics: A Guide for Bridging Cross-sectoral Neuroscience

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Introduction

Motivators to Innovate in Neuro

What is the purpose of neuro-innovation?

1. Benefitting and fostering humanity: reducing suffering and increasing happiness from disease and injury to lack of access and ability
2. Clinical: to meet current clinical needs, improve treatment, and provide extra diagnostic accuracy/prediction, impacting how diseases are labeled, defined, and treated.
3. Empowerment: to enhance “autonomy” of the public, empowering them to have greater bandwidth of knowledge, choices, and behaviors.

Needs Assessment: Key Neuroethics Concerns?

What are the key (neuro)ethical tensions of neuro-entrepreneurs?

1. Data Ownership: Should data be owned by researchers or patients?
2. Access and Justice: Can neuro-innovation be used to benefit humanity?
3. Neuro的权利 and Misuse: Current data regulations are insufficient, but may not be sufficient for future regulations and possible uses of brain data in the commercial space.
4. Autoethics: Autonomy and Privacy: Neurotech can provide enhanced abilities for individuals, but may lead to stigma, discrimination, power imbalances, and other consequences. It is important to ensure that the technology is used for the benefit of individuals and for society as a whole.
5. Autonomy and Privacy: Neurotech can provide enhanced abilities for individuals in the future, but may also lead to increased control over users through data, which will become a privacy concern in the future.

Motivators to Innovate in Neuro

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1. Potential Impact of a disease model (ex: unintended consequences)
2. The ethical standards of data collection
3. The moral significance of engineered neural systems (less specific to many entrepreneurs we considered)
4. Challenges to autonomy with brain interventions
5. Contexts in which neurotechnology can be deployed and whether or not these decisions require diverse stakeholders

NeQNI categories

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Results

Empowerment: is critical for neuro-entrepreneurs. Empowerment is critical for neuro-entrepreneurs.

Non-clinical: The commercial domain raises ethical concerns.

Clinical: Compromises for data usage, which will become a privacy concern in the future.

Benefiting/advancing humanity: The idea of neuro-entrepreneurs is not always shared with everyone.

Autonomy and Privacy: Neurotech can provide enhanced abilities for individuals in the future, but may also lead to stigma, discrimination, power imbalances, and other consequences.

Interfacing with Societal Norms:

Neurodata and Misuse:

Access and Justice:

Data Ownership:

Future Directions

Overall, we hope to raise awareness and provide actionable steps toward advancing and accelerating societal impactful neuroscience.

1. The next phase of our work will therefore be conducting quantitative research for generalizable data on roadblocks and potential strategies forward.
2. We aim to create a common language amongst diverse stakeholders to move forward across groups with unity.
3. Neuro-industry will likely drive majority of clinical and consumer neurotechnology in the future.

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Hypothesis and Methods

Hypothesis: Neuroethics is not contrary to, but instead can enrich neuro-innovation.

Methods:

- Empirical ethics methods to assess the perceived value and attitudes of neuro-innovators toward neuroethical issues and whether or not these issues align with the process of neuro-innovation.
- One-on-one semi-structured interviews with 21 neuro-innovators in neuro-industry until exhausted emerging themes
- Two-independent coders and iterative analysis (Grounded Theory)

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3 strategic initiatives within our lab are particularly integral to our goal:

- Dr. Karon Rommelfanger, Director
- Zone Li
- Ankita Moss

https://sharpbrains.com/pervasive-neurotechnology/
https://neuroethicsreports.com/page/newscenter.html