

# PLANNING FOR HUMAN IMPLANTATION OF A CORTICAL VISUAL PROTHESIS

## ABSTRACT

Over the years there has been intensive research on visual prosthesis around the world and significant technological advancements have been made. The

Intracortical Visual Prosthesis Team (IVP) at IIT has been researching and developing a procedure as well as a device which will be implanted within the human visual cortex. The device consists of sub-miniature electrodes which will artificially stimulate the visual cortex by introducing electrical currents in to the cortex. The IIT Team has reached a point in their 10 year development process where they would like to proceed with implanting the device in a volunteer in the next few years.

our own opinion on whether this device is ready for human implantation, and what may be some possible issues that can arise as the project moves into the implantation stage.

## OBJECTIVE

- Review available literature on visual prosthetics, focusing on intracortical, and make an assessment on the status of this technology.
- Expand on the ethical, psychological, medical, regulatory, political, media, and engineering aspects of this new technology.
- Make inferences regarding the overall effects of the multispectral aspects of
- Intracortical Visual Prosthetics on human volunteers, and create a plan bridging the gap between the current state of the technology and the point of the first human volunteer.

## IPRO TEAM

### •TEAM MEMBERS :

1. Marin Assaliyski (Aero and Mech. Eng.)
2. Joshua Blacketter (Materials Eng.)
3. Saurabh Jain (ECE)
4. Joel Kam Sadjja (Electrical Eng.)
5. Peter Mathes (Psychology)
6. Kevin Ragauskis (Biomedical Eng.)
7. Andrew Rust (Biology)
8. Dan Tian (Biomedical Eng.)
9. Minh Tran (Chemical Eng.)

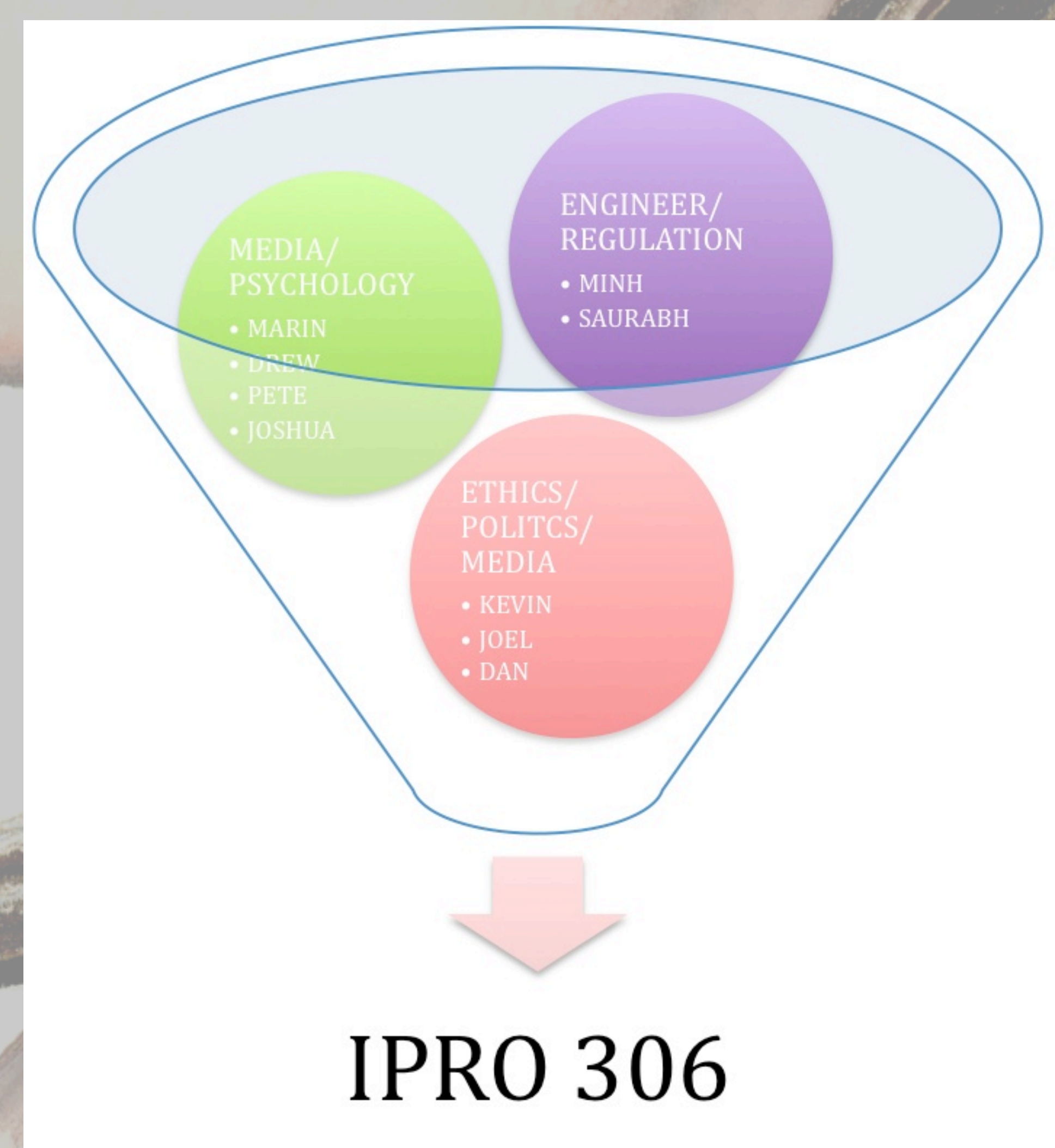
### •FACULTY ADVISORS:

- Professor Phil Troyk
- Professor Margaret Huyck

## BACKGROUND

- This IPRO project is sponsored by the Intracortical Visual Prosthesis Team at IIT, which includes the University of Chicago, Huntington Medical Research Institutes in Pasadena, CA, EIC Laboratories in Norwood, MA, and Micro Probe Inc in Frederick Maryland.
- The goal of the IPRO team is to create a project road map that will detail the needs and requirements needed to meet the criteria of safety for an implanted prosthesis.
- This IPRO is the first of its kind. No previous IPRO has explored the various moral, ethical, cultural or scientific issues of implanting a human with a visual prosthesis
- The IIT Institutional Review Board (IRB) is responsible for reviewing all research involving humans in any way, and deciding whether all involvement with humans is done within strict guidelines, which take into account ethnical, medical, moral and cultural issues. We will review the ethical, medical, cultural, and moral issues and provide

## METHODOLOGY



## ACKNOWLEDGEMENTS

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