The choice of research environment involves two main facets 1) the supervisor Jonathan Winawer, Assistant Professor of Psychology and Neural Science at NYU and 2) the content of the NIH Brain Initiative grant which Dr. Winawer co-authored alongside four other Principle Investigators (PIs), and which my postdoctoral work will be focused on.

1) First, Jonathan Winawer is a young assistant professor at NYU whose work has generated over 2500 citations in the past 5 years. The Winawer lab currently employs a full time research assistant, two postdoctoral fellows, and 4 PhD/MSc students. Given the relatively small size of the lab, and the presence of a full time research assistant, I can be assured constant, immediate access to Dr. Winawer, allowing me to benefit from his knowledge on a daily basis. There is a large degree of overlap in scientific content between my own research and that of Dr. Winawer. The most important publication from my PhD relates directly to Dr. Winawer’s work relating neural activity and hemodynamic signals, and we have already had several interesting discussions over skype, although we have yet to meet in person. The Winawer lab makes routine use of state of the art magnetoencephalography, high density electroencephalography, and 3Tesla FMRI, tools which with I am already quite familiar, with the exception of magnetoencephalography.

2) Second, Dr. Winawer was co-applicant on an NIH Brain Initiative grant proposal involving four other PIs, which was accepted and is currently midway through the 5-year timeline. The grant proposal centers around modeling neuronal population activity based on non-invasive measurements of human brain activity, which requires recording of neural activity directly from the cortical surface using invasive electrocorticography, in order to inform the model. One of the co-applicants on this grant, Orrin Devinsky, MD, is the director of the Comprehensive Epilepsy Center at the NYU School of Medicine, which is the largest epilepsy monitoring facility in the United States. Dr. Winawer’s connection to Orrin Devinsky and the Comprehensive Epilepsy Center will be critical for obtaining access to the rare patients who undergo intracranial electrocorticography implantation. Not only will I be analyzing data already acquired in these patients, and comparing it to non-invasive EEG/MEG recordings acquired pre-operatively in the same subjects, in my conversations with Dr. Winawer, he has mentioned that I will have direct access to some of these patients, allowing me to test stimuli of my own design, and extend the work I performed during the PhD on the alpha and gamma EEG rhythms.

In summary, the research environment I am applying to at NYU combines a small tightly knit research lab lead by an up and coming young PI, with the most abundant source of intracranial electrocorticography patients in North America, working under a grant proposal designed to bridge non-invasive EEG/MEG/FMRI measurements with neuronal population activity using ECOG. In this environment, I will be at the forefront of developments that deepen our understanding of the neural basis of non-invasive brain signals