Fatemeh Safari

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As I embark on the path to doctoral studies, I am drawn to the dynamic research environments led by Professors Juchem and Hillman at Columbia University. The innovative work at the intersection of engineering and healthcare in both Labs resonates deeply with my academic trajectory and aspirations.

My role as a Research Associate at NYU Grossman School of Medicine equipped me with valuable insights into the convergence of engineering principles with medical applications. Notably, my involvement in the development of a Microwave Medical Imaging Prototype for Stroke Classification and Localization heightened my appreciation for the transformative potential of engineering in healthcare. This experience has fortified my resolve to contribute meaningfully to advancing medical technologies.

Upon reviewing the MR Science Lab’s emphasis on magnetic resonance imaging (MRI) and spectroscopy, I am excited by the prospect of contributing to projects that push the boundaries of MRI technology. My proficiency in electromagnetic field simulations positions me well to enhance hardware solutions for healthcare applications. Additionally, my experience in PCB design and 3D printing aligns seamlessly with the lab's commitment to innovation in healthcare technology.

The groundbreaking work at the Laboratory for Functional Optical Imaging, focusing on in vivo imaging and microscopy techniques, is equally compelling. My strong foundation in electromagnetics, spectroscopy, and quantum mechanics from my undergraduate studies in physics will be invaluable in delving into advanced optical imaging methodologies. This background lays a solid foundation for contributing to projects exploring neural dynamics and functional imaging.

Upon completion of my doctoral studies, I aspire to merge my expertise in electromagnetic field simulations, MRI technology, and optical imaging methodologies. My goal is to pioneer advancements in imaging technologies that have a direct impact on clinical diagnostics and interventions. By bridging the gap between engineering innovation and healthcare outcomes, I aim to contribute to a new era of precision medicine.

I am drawn to Columbia Engineering not only for its academic excellence but also for the vibrant research community that fosters collaboration and innovation. The opportunity to engage with distinguished faculty members, including Professors Juchem and Hillman, and work alongside fellow scholars who share a passion for engineering in healthcare is an unparalleled opportunity for my academic and professional growth.

The Juchem Lab's and Hillman Lab's pioneering work in developing advanced imaging methodologies, including MRI and optical techniques, is a testament to their commitment to pushing the boundaries of medical imaging. I am particularly excited about the potential to contribute to research projects that have a direct impact on patient care and to be part of a community dedicated to advancing healthcare technologies.

In conclusion, I am enthusiastic about the prospect of joining the Juchem Lab and the Hillman Lab, along with the Department of Biomedical Engineering at Columbia University. With an unwavering commitment to excellence and a passion for engineering solutions in healthcare, I am eager to embark on this transformative academic journey.

Thank you for considering my application.

Sincerely,

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