IET Travel Award Report: Research Semester at MIT Lab for Computational Physiology

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I was awarded an IET Travel Award to undertake a semester-long research visit at MIT's Laboratory for Computational Physiology (LCP) during the final year of my PhD studies. This timing allowed me to expand my research scope and methodology during the final phase of my doctoral studies, enhancing both the quality and impact of my research.

My research centered on open access electronic health records, utilizing the MIMIC IV and eICU databases, both widely used in critical care research and both developed by the LCP.

My work encompassed machine learning approaches to understanding physiological relationships, time series analysis of patient monitoring data, and clinical decision support algorithm development. The laboratory's interdisciplinary approach exposed me to methodologies spanning biomedical engineering, computer science, and clinical medicine.

I became fully integrated into the lab’s research ecosystem, participating in weekly lab meetings, journal clubs, and technical seminars. I worked closely with postdoctoral researchers, PhD students, and faculty members, contributing to ongoing projects while advancing my own thesis.

The coding best practices and data management techniques I learned have fundamentally improved my research methodology. Expertise with MIMIC IV and eICU databases has opened new research avenues and provided skills for handling large scale medical datasets.

Beyond daily lab work, I engaged in seminars and talks within MIT and the broader Boston research community. These included seminars at Harvard Medical School and Mass General Hospital, technical workshops, and meetings with researchers from other MIT departments.

The productivity of this semester exceeded my expectations. I authored several research papers, taking first authorship on multiple projects while contributing as middle author on additional works. Some of these works have already been accepted for publication or are under review. The high quality mentorship and resources at MIT enabled substantial improvements in both quantity and quality of my research. The rigorous peer review process within the laboratory ensured my work met the highest academic standards before journal submission.

The networking opportunities were unprecedented. I met and collaborated with professors whose work I had studied during my undergraduate years, going from admiration of their published work to active collaboration and sometimes even mentorship relationships.

A particularly memorable experience was meeting the state senator of Massachusetts, which provided insights into healthcare policy implications and the importance of bridging academic research with public policy.

I established lasting collaborative relationships with fellow researchers that continue beyond my visit at the lab. The relationships I built have provided me with direct access to world leading experts who I can now contact directly for guidance and collaboration.

Although making conscious choices to minimize travel footprint during this visit was hard, given two transatlantic flights, I did remain based in Boston for the entire semester rather than undertaking extensive travel within the United States.

I extend sincere gratitude to the Institution of Engineering and Technology for their generous support through the Travel Award program.