

IET Report

In 2025, I had the privilege of presenting an oral presentation at the renowned Pittcon Conference in Chicago, under the title “Non-invasive Microfluidic Monitoring Technologies for Premature Neonates.” Pittcon, recognized for its focus on advancements in analytical chemistry, provided a remarkable platform to present groundbreaking research, exchange innovative ideas, and engage with leading experts from the scientific community. Below is a detailed overview of my experience at Pittcon 2025, highlighting the technical focus, my role at the conference, networking opportunities, and how the award has contributed to advancing my research.

The Pittsburgh Conference on Analytical Chemistry and Applied Spectroscopy (Pittcon) is one of the largest and most significant gatherings for professionals in analytical instrumentation, laboratory equipment, and scientific research. The conference brings together scientists, engineers, and industry leaders from across the globe, creating a dynamic environment for collaboration and knowledge sharing.

My participation was centered around presenting research focused on non-invasive microfluidic monitoring technologies, specifically designed for premature neonates. Premature birth remains a significant global health concern, and neonates often require continuous monitoring of various vital parameters. While traditional invasive monitoring methods are effective, they can cause distress and pose risks. Therefore, non-invasive alternatives represent a vital area of research. My presentation highlighted advancements in using microfluidics to monitor key biomarkers and vital signs in real-time, providing a potential breakthrough in neonatal care.

Pittcon 2025 featured an impressive range of technical sessions, including topics in analytical chemistry, chemical engineering, material science, and biomedical engineering. The conference emphasized the growing role of microfluidics in healthcare, with a particular focus on real-time, non-invasive monitoring techniques. This aligned perfectly with my research on non-invasive microfluidic systems designed to monitor biomarkers in premature neonates. These systems have the potential to enhance neonatal care by offering continuous, non-invasive monitoring of critical parameters like glucose, pH, and lactate levels. This approach can reduce the risk of infections associated with traditional methods, providing a safer and more comfortable experience for premature neonates and their families.

As an oral presenter, I had the opportunity to showcase my research findings to an audience of experts, researchers, and industry leaders. The session was well-received, and I engaged in discussions about the potential applications of microfluidics in neonatal healthcare. My presentation addressed the challenges faced by premature neonates in monitoring their health and explained how microfluidic systems could serve as a game-changer for improving patient care in neonatal intensive care units.

In addition to presenting, I attended multiple sessions that offered insight into the latest technological advancements in sensor technology, diagnostics, and the integration of microfluidics into clinical environments. These sessions provided valuable knowledge that directly complemented my research and furthered my understanding of emerging trends in biomedical engineering.

One of the most rewarding aspects of attending Pittcon 2025 was the opportunity to network with fellow researchers and professionals in biomedical engineering and healthcare technologies. I engaged in several discussions that led to potential collaborations, particularly around scaling the implementation of microfluidic systems for broader clinical use. Networking sessions provided a platform to connect with experts from both academia and industry, offering valuable perspectives on the commercialization of research and real-world applications of cutting-edge technologies.

The event also facilitated cross-disciplinary collaborations, helping me gain insights into challenges and opportunities within the healthcare technology sector. These networking opportunities have paved the way for future collaborations that could accelerate the clinical adoption of microfluidic technologies in neonatal care.

As part of the conference, I attended technical exhibits and academic visits showcasing the latest innovations in analytical instrumentation. The exhibit hall was filled with state-of-the-art technologies, including microfluidic devices, sensors, and diagnostic tools that complement the work I am doing in neonatal healthcare.

The IET Travel Award that facilitated my participation in Pittcon 2025 has played a pivotal role in advancing my research. The opportunity to present my work at such a prestigious conference allowed me to share my findings with a broader audience and receive critical feedback that will contribute to improving my microfluidic monitoring systems for premature neonates. Additionally, exposure to the latest advancements in microfluidic technologies and biomedical research has had a direct influence on my ongoing projects, particularly in optimizing the integration and performance of these systems in healthcare environments.

The networking opportunities at Pittcon also led to potential collaborations that could help accelerate the development of these technologies. These partnerships may contribute to bridging the gap between research and clinical applications, helping to bring non-invasive monitoring systems to neonatal care units more effectively.

Attending Pittcon 2025 and presenting my research on non-invasive microfluidic monitoring technologies for premature neonates was an invaluable experience. The conference provided an exceptional platform for presenting my findings, networking with experts, and gaining knowledge that will contribute to the continued development of these technologies. The opportunity to engage with fellow researchers and industry professionals, as well as to receive feedback on my work, will have a lasting impact on my research trajectory and professional development. The IET Travel Award that made my participation possible has significantly advanced my research and strengthened my connections within the scientific community, positioning me to contribute further to the field of neonatal healthcare.