Dr Ibrahim Habli is a lecturer in the Department of Computer Science at the University of York. From 2015 to 2016, a Royal Academy of Engineering Industrial Fellowship allowed him to collaborate with NHS Digital on evidence-based means for assuring the safety of digital health technologies.
Dr Habli's research interests are in the design and assurance of safety-critical systems, with a particular focus on digital health and intelligent systems. Safety-critical domains, such as in the aviation and automotive industries, are well established in mitigating against the types of failures that can lead to human harm. Dr Habli was keen to apply expertise in this area to a new field. “I wanted to explore healthcare from the inside and understand how safety practices compare with other domains,” he explains.

Understanding digital healthcare is of increasing importance. From patient records to electronic prescriptions, large quantities of data are used in various ways to improve patient outcomes and healthcare experiences. A Royal Academy of Engineering Industrial Fellowship enabled Dr Habli to collaborate with NHS Digital to investigate how its digital healthcare systems could be enhanced to improve patient safety.

Working with the clinical safety team, he gathered empirical review evidence about current health IT safety assurance practices. The findings helped develop a tool to assess strengths and weaknesses in health IT systems.

The Safety Modelling, Assurance and Reporting Toolset (SMART) developed by Dr Habli and NHS Digital creates treatment pathway models involving digital healthcare. It aims to assist clinicians and engineers by highlighting hazards or areas where patients might be at risk.

During the Industrial Fellowship, Dr Habli also developed a set of collaborative case studies for emerging technologies such as apps and telehealth solutions. These explored local and national perspectives and looked at their impact in different contexts, such as in hospitals or the community.

Establishing a sustainable relationship with industry has also brought several benefits for Dr Habli’s students. “The impact of the collaboration on teaching practices was immediate,” he explains. “We have had guest lecturers from NHS Digital on undergraduate and postgraduate programmes, a number of student projects supported by NHS Digital and new research students working on digital health.”

The collaboration also supported Dr Habli to develop new lines of research.

“The Fellowship helped me to establish an active research profile in digital health safety, including new research projects, research students and close collaboration with the NHS and health IT firms,” notes Dr Habli. “My collaboration with NHS Digital remains active on many fronts including ongoing developments with SMART and support with other research projects.”

The Industrial Fellowship scheme provides an invaluable opportunity for early- to mid-career academics to undertake a collaborative research project in an industrial environment. The scheme aims to strengthen the strategic relationship between the university and the industry host by providing an opportunity to establish or enhance collaborative research between the two parties and enhance the quality of teaching.