
Daresbury Laboratory
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19th September 2022

Kathryn Barker

295 Atherton Road,
Hindley
Wigan

Dear Sir/Madam,

I am incredibly excited to submit my application to your organisation for the position for a Graduate Mechanical Engineer. When reviewing the job description, it was clear to me just how well my academic experience aligns with the needs of the STFC and the requirements of the position.

During my years at university, I have strived to maintain a high standard of work and punctuality. This is reflected in my graded results where I attained a 1st class master's degree with honours in mechanical engineering, as well as the opportunities I have been given to represent the university.

In my 2nd year of university, I participated in the UCLAN Peer-Assisted Study Session initiative. In which, a pair of higher-year students (PASS Leaders) facilitate a group of lower-year students to discuss and resolve problems during their academic year. All participants in sessions hosted by myself and my partner went on to perform exceptionally well in their studies.

For my third year, I took on the project of creating a digital learning platform for individuals and teams who are dedicating their lives to alternative applications for engineering, to try to expose people to engineering in its full breadth, with a particular focus on increasing diversity and personal wellbeing.

This event involved liaising with the involved businesses to build a comprehensive event programme, as well as designing and building the website for the event. The reception was far beyond the expectations for a first-time event, including talks from graduate students working for the Ministry of Defence, stress and self-management from a business mentor and self-development coach, and a former RAF Air Commander

now working as an Operations Analyst and UAV Expert at Boeing.

In my final year I took on the role of Group Project Leader for our group, my team worked tirelessly to deliver a product that fulfilled all nominal specification requirements. This product garnered a great deal of interest from the American Society for Testing and Materials (ASTM), after which my team were named the first student chapter of the ASTM F48 standards guidance. I was named president of the ASTM F48 student chapter and was offered paid work to continue working on the device and begin the first-ever human trials to take place in the engineering department at UCLAN. Throughout this role, I was frequently faced with challenges where I had to think outside of the box and work with different groups of people to collaborate on a more complex aspect of the project. For instance, working with BEng students and the workshop Technicians to produce high-precision manufactured components which were designed to improve the functionality of the device, then dubbed the Workshop Assistive Lower Limb Exoskeleton (WALLE).

I also attended the Med-Tech conference to gain insight into potential applications for our device, with a particular focus on neurological and skeletomuscular injury recovery and rehabilitation.

For my project, I produced a thesis where The purpose of the research was to gain a deeper understanding of the in silico representations of blood, and at what scale of observation the importance of hemorheology becomes vital in the description of the fluid dynamics of blood. This was considered for publication in a medical journal submitted for the John Tyndall institute (JTi) at UCLAN. the JTi is a research group dedicated to the applications of data-driven research for clinical and environmental contexts, to implement improvements in the methodologies business apply to reduce emissions and save lives.

I hope that you will consider my application for this role, I am excited at the opportunity at working in a research role at the cutting edge of engineering applications in science.

Thank you for your consideration.

Kathryn Barker

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