Research Training Scholarship Report

Following my two-month research training in the UWS United Kingdom through the Safe-RH Program, I am delighted to share the insights gained and experiences encountered during this period. The primary objective was to advance my academic and professional skills, with a particular emphasis on collaborative learning, hands-on training, and the completion of a comprehensive thesis proposal.

Engaging with fellow PhD students at UWS was a noteworthy aspect of my visit. Through discussions and shared experiences, I gained diverse perspectives on ongoing research projects. These interactions not only broadened my understanding of various fields but also created a dynamic and intellectually stimulating environment within the lab.

Exploring advanced lab devices, including robots and sensors, provided a unique hands-on experience. This exposure was instrumental in expanding my technical proficiency and deepening my insight into the practical applications of these technologies within the realm of ongoing research initiatives at the lab. The core focus of my visit centered around the meticulous

preparation and subsequent submission of my thesis proposal. This process involved refining my research plan, seeking guidance from mentors, and presenting my proposal to the academic community. Simultaneously, actively participating in testing the Safe RH program allowed me to contribute meaningfully to a real-world research initiative, blending theoretical knowledge with practical application.

Alongside these objectives, I actively participated in the testing phase of the Safe RH program and undertook additional tasks, including a literature review, the implementation of sensor-based human activity recognition for open-set problems, and the development of a novel framework to enhance performance.

A crucial component of my research training involved conducting a literature review. This comprehensive exploration of existing research laid the groundwork for my understanding of the current landscape in the chosen field. It provided valuable insights into the gaps, challenges, and opportunities that would guide the subsequent phases of my research. The implementation of sensor-based human activity recognition for open-set problems was a hands-on and technically enriching task. This involved applying theoretical knowledge to real-world scenarios, developing practical solutions, and navigating challenges associated with open-set problems. Through this implementation, I not only honed my technical skills but also gained a deeper appreciation for the complexities inherent in deploying such systems.

Subsequently, I presented the drafted literature review, showcasing my understanding of the existing body of work and identifying potential avenues for further exploration. The presentation served as a platform for feedback from mentors and peers, contributing to the refinement of my research direction. Results analysis and reporting, including the presentation of methods used in the implementation of sensor-based human activity recognition, formed another critical phase. This task allowed me to showcase the outcomes of my efforts, communicate the methodologies employed, and receive constructive insights from the academic community.

To further strengthen my research contribution, I undertook a gap analysis, presenting the results and insights gleaned from the previous phases. This provided a holistic view of the research landscape, highlighting areas that require further exploration or refinement. As a culminating task, I began working on a novel framework to improve the performance of sensor-based human activity recognition systems. This task represents an exciting prospect for innovation within the field, and I am eager to continue developing and refining this framework in future research endeavors.

In conclusion, the research training period in the UK has been transformative, exceeding initial expectations. The diverse experiences, from engaging with peers and exploring advanced lab devices to contributing to the testing of innovative programs, have collectively shaped my academic and professional growth. As I reflect on this enriching journey, I am eager to apply these newfound skills and perspectives to my future research endeavors, leveraging the valuable lessons learned during this period.

I extend my heartfelt thanks to CUST and UWS and to the dedicated teachers and mentors who guided me throughout this journey. The support, encouragement, and wealth of knowledge provided by the teachers played a pivotal role in shaping my academic and research journey. I am truly grateful for the chance to contribute to the academic community and for the invaluable lessons learned under their guidance. The internship certificate received serves as a testament to

the valuable skills gained and contributions made during this transformative period of academic and professional growth.

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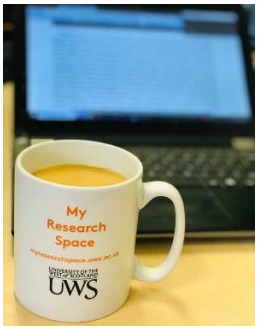
Report on Research Training at UWS

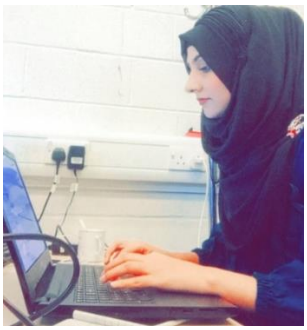
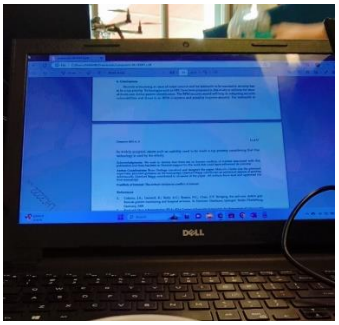
I had the privilege of being invited by UWS University to join a two-month research training program, an opportunity that greatly enhanced my academic and professional journey. These two months proved to be a significant period that not only expanded my academic horizons but also provided practical insights pivotal for my professional growth. Being chosen by my home institution, CUST Islamabad, this prestigious program added my excitement as I arrived at lively UWS campus.

The primary focus of my engagement during my stay in UWS was the SAFE-RH project, a substantial initiative funded by the European Union under the Erasmus plus Capacity Building in Higher Education (CBHE) program. My role in this project revolved around critical components such as data security, storage, transfer, and legal considerations in the context of remote patient monitoring. Being part of this project, I was exposed to the intricacies and complexities involved in managing sensitive patient data within the framework of technological solutions.

The School of Computing, Engineering and Physical Sciences (CEPS) research lab was more than just a regular workspace; it was buzzed with collaborative learning and exploration. The mentorship extended by the instructors and lab fellows went beyond technical expertise, imparting invaluable research methodologies and problem-solving strategies that will undoubtedly guide me in my future academic pursuits.

My involvement in the SAFE-RH project was not only an intellectual exercise; it was a practical application of theoretical knowledge to real-world situations. Actively participating in the testing phase provided me with hands-on experience in implementing data security principles, confirming my academic understanding and offering profound insights into the challenges of implementing such technological solutions in healthcare settings.



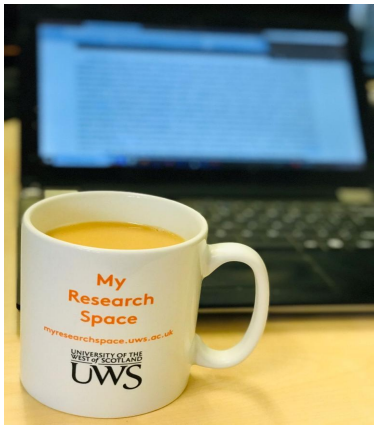



Moreover, I was assigned a task to work on review paper. Contributing to a review paper was both demanding and rewarding. Collaborating with faculty members in this endeavor was not just about contributing to academic discussions; it refined my ability to communicate complex concepts effectively and navigate the intricacies of sharing research findings.

My time at UWS has been transformative, going beyond just gaining knowledge and skills. It shaped my research approach, nurturing collaboration, emphasizing ethical considerations in healthcare tech., and instilling a drive to use theory to solve real-world problems. I am deeply grateful to CUST and UWS for this opportunity to expand my academic horizons in healthcare. The experiences and lessons from these two months will guide me forward in the future. With a collaborative mindset, hands-on skills, and a commitment to ethics, I feel prepared to tackle future challenges, aiming for a future where technology blends innovation with compassion.

Research Internship in UK: A Life-Changing Experience

My name is **Sania Komal**, and I am a Master's student in Computer Science at the Capital University of Science & Technology in Islamabad, Pakistan. I got the chance to visit the University of the West of Scotland (UWS) for a duration of 60 days through the European Union funded project under Erasmus + Capacity Building in Higher Education (CBHE) program. The project title is Sensing, Artificial Intelligence and Edge Networking towards Rural Health monitoring (SAFE-RH).The major objective of the visit is to perform R&D activities related to the SAFE-RH project. With the consultation of my supervisor,**Dr.Nayyer Masood.**



My research experience at the University of West of Scotland was both challenging and rewarding.I had the chance to collaborate with a team of talented PhD researchers at UWS , which broadened my perspective and helped me develop my communication and teamwork skills.

In addition to my research, I also made the most of my time in Scotland by immersing myself in the local culture. I visited Glasgow Science center, tried traditional Scottish food, and even learned a few basic Gaelic phrases. I was amazed by the beauty of the Scottish landscape and the warmth and hospitality of the people.

This internship was more than just a research opportunity; it was a life-changing experience. I gained not only valuable academic and professional skills but also personal growth. I learned to

be more independent, adaptable, and resourceful. I also developed a greater appreciation for different cultures and ways of life.
My journey in the UK wouldn't have been complete without expressing immense gratitude to the professors who guided me throughout my research. At Capital University of Science & Technology (CUST), I owe a deep debt of thanks to my supervisor,**Dr.Nayyer Masood**, whose unwavering support and mentorship fueled my initial research passion. Their insightful guidance during the proposal stage laid the foundation for my success in the Safe-RH project.

At the University of West of Scotland (UWS), I was fortunate to be under the supervision of **Dr. Naeem Ramzan**. Their expertise in Research proved invaluable, pushing me to think critically and explore new avenues within my research topic. Their constant encouragement and patience helped me navigate the challenges of independent research, instilling confidence in my abilities and fostering a love for academic exploration.My heartfelt thanks also go to the seniors and fellow researchers at UWS. The computer lab became a second home, where I learned not only from **Dr. Naeem Ramzan** but also from the collaborative spirit of the research community. Sharing ideas, troubleshooting together, and celebrating each other's milestones created a truly enriching environment that accelerated my learning curve.

Ultimately, the success of my internship rests on the shoulders of these incredible individuals. Their dedication, expertise, and unwavering support allowed me not only to identify the research gap in "monitoring Wellbeing of Elderly people through wearable devices" but also to solidify my thesis synopsis within two short months. I leave the UK with a newfound confidence in my research abilities and a deep appreciation for the invaluable guidance I received.

My research internship in the UK was an unforgettable experience that I will cherish forever. I am grateful for the European Union and the University of West of Scotland for providing me with this incredible opportunity. I would highly recommend this experience to any student interested in pursuing research in their field.