Abdulrahman Albar, MIET, AFHEA, MSc, BEng (1st Class Honours)

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Summary

- I Obtained my **BEng** in Electronic & Electrical Engineering with **first class honours** in July 2016 from Brunel University, and **MSc** in Advanced Electronic & Electrical Engineering in December 2017 with a Distinction. Currently pursing my PhD research in Brunel University in Additive Manufacturing and Robotics.
- I have built a comprehensive competence in using software such as **MATLAB** and **Quartus2,** and programing languages such as **C++** and **Python** during my degrees.
- I have also gained advanced knowledge in **CAD** and **CAM** by applying it in various **3D model** designs including the nozzle designs for my MSc dissertation on **Additive Manufacturing**.
- Advanced technologies, such as **autonomous systems and robotics** have always been the main interest of my research. In this framework, I did a **summer internship** (2016) at Digirobotics Technologies, where I was involved in projects such as autonomous vehicles and additive manufacturing, i.e. 3D printing with different materials feedstocks. Completed a Udacity Robotic Software Engineer Nanodegree.

Education

Sept 2017-20	**PhD in Additive Manufacturing and Robotics**		Brunel University
Sept 2016-17	**MSc Advanced Electronic & Electrical Engineering**	Distinction	Brunel University
Sept 2012-16	**BEng Electronic & Electrical Engineering**	1st Class	Brunel University
Sept 2012-13	**Engineering Foundation Year**	1st Class	Brunel University

MSc Final Year Project: Advanced Robotics in Additive Manufacturing **(ARAM)**

- The primary aim of this project is to design and develop a scalable additive manufacturing for the construction sector as an eco-innovative solution to reduce cost and time while increasing quality and versatility of building a 3D structure.
- I worked on developing an additive manufacturing system in collaboration with the Civil department at Brunel University to investigate and formulate printable materials.
- As part of my work, I was invited to demonstrate my project outcome using a Kuka robot at the Big 5 International Building & Construction Show 2017 in Dubai.

BEng Final Year Project: Holoscopic 3D Imaging Sensor for Raspberry Pi **(HIS-Pi)**

- The aim was to design and prototype a portable **Holoscopic 3D** lens adaptor for Raspberry Pi camera module to **facilitate accurate spatial 3D data acquisition** including relevant software algorithms for Holoscopic viewpoint and elemental image extraction.
- As a result, I won The Anson Fund Prize and published a conference paper in IEEE. (10.1109/DMIAF.2016.7574929)

Awards and Certificates

- **EW BrightSpark 2018** for talented young 30 engineers under the age of 30 in the UK.
- **The IET Prize 2016** for Best Student on an IET Accredited Course
- **The Anson Fund Prize** 2016 for innovation in design and engineering relating to medical applications
- **Saudi Culture Bureau rewards** (4 x) for excellence in the academic field
- **Training Certificate** on Robotics and Applications at Middle East Concrete & PWV Live 2016 (Big5 Show)

Publication

- Albar and R. Swash, Portable Holoscopic 3D Camera Adaptor for Raspberry Pi, Digital Media Industry and Academic Forum, IEEE, 2016, 185-188. (10.1109/DMIAF.2016.7574929)

Technical Project Work

Digirobotics Technology – Internship (Jun 16 - Aug 26)

- As the trainee, I became familiar with the mission of Digirobotics which is to implement robotics solutions and make industrial processes smarter, effective and advanced.
- I had full exposure to an autonomous car project where a wealth of foundation knowledge was gained about the different aspects of converting an electric car to a driverless car including; sensor fusion (i.e. Velodyne LIDARs, radar, cameras etc.), Experienced with Middleware's (**ROS & PolySync)**
- I worked on operating a **Kuka robotic** arm for plastic 3D printing and concrete printing. In which I have learned how to use and **program** a Kuka robot.

- I presented at the Big5 show the companies strategies and background to a group of interested stakeholders in the exhibition.

Multi-disciplinary Project – Team Leader (2013)

- The aim was to collaborate with mechanical and civil engineers in group of 6 to build and program a Lego Mindstorms robot within a week.
- I had an Input into the design and building of the robot and mainly worked on programming the robot to take advantage of various sensors to complete the course set.
- Due to our effective and innovative work as a team we won awards for the best design and quickest time.
- I established a great network of engineers from different fields, which will help me in future projects.

PIC Project – Team Leader (2014)

- The aim was to work in a team of 5 to develop a home security system using PICmicro, over a **5 week** period.
- As project manager, I distributed the work between the team based on the capability and skills of each member
- I contributed to the investigation of the technical aspect of the design and started programming the **PICmirco** in **Verilog**, to model and simulate a home security system.
- As a result, I developed a greater appreciation of a complete project development cycle.

Competences and Skills

I have gained vital experience in the project management as I have been involved and selected as the project leader for various university projects, including MDP and PIC project. I have learned key features which are required to complete a successful research within multidisciplinary projects:

- **Communication** (to share thoughts, ideas and solutions), evidences include preparing project reports, experimental plan set up (i.e. Team Lead in MDP and PIC projects). Positive attitude and persistence have helped me to acquire this competence.
- **Collaboration** (team working to gain solutions), this was developed through delivering the project objectives and initiating new paths for further research and collaboration (i.e. successful completion of my summer intern project which was one of the leading factors to the current ARAM project). Open mind and patience highlight the competences I gained from this.
- **Critical thinking** (looking at problems in new ways, linking and learning), evident in coming up with a pump system in a short time from the recourses available during my MSc ARAM project.
- **Creativity** (new ideas and evaluating existing ideas), attained by always asking myself how every product I hold can be improved and how can it be used for a different purpose. My discipline, focus and curiosity play important part in developing this skill.

Interests

Technology

- I have always been fascinated and interested in technology since a young age, love to try, read and hopefully soon invent a new technological product. Decided to become a tech reviewer on YouTube, started my channel 5 years ago in which I review tech product in Arabic that I think are unique and useful e.g. 3D printers, robotic arms, Smartpens, and Gopro. (https://www.youtube.com/user/Mubta3athTech)
- Strong interest in 3D printing with 4 years' experience. 3D printing has become an essential tool for every project I work on. I used it for designing and prototyping a concrete 3D printing extruder, as well as building my own 3D CNC machine with other various objects used in different projects.

University Societies

- An active member of the ElectroniCo engineering society, and now a committee member. This has expanded my social network and gained different experiences and knowledge by attending events and visits to various industrial companies and research centres (Such as CERN, Fusion Research, diamond light source science facility, Thales, BMW Mini plant, Cruachan Power Station).
- I attended the Brunel Innovation Hub event in summer 2017, "entrepreneur training week", which helped me explore more opportunities in line with my research interest, to lead in successful transition to a business model.

References

Available upon request.