

## SAM WILCOCK

Postgraduate Researcher in Robotics  
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UK

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### EDUCATION

The University of Leeds

**Postgraduate Researcher (Provisional PhD) in Robotics**

**2020 – PRESENT**

Research Project: *“Robotic construction of shell structures”*

My most recent work has been researching the use of manipulator arms in order to assemble free-standing architectural scale assemblies. The research thus far has been heavily ROS oriented, requiring the creation of novel reachability analyses and software drivers to aid the interaction between manipulator simulation environments and CAD software, to allow robot capabilities to feedback into 3D design processes.

The University of Leeds

**MScEng Mechatronics and Robotics**

**2018 – 2019**

Dissertation Title: *“Estimation of Extinct Animal Bone Structure and Computational Dynamics Simulation to Find a Stable Walking Policy”*

**Pass with distinction**

Throughout the master’s I focused on picking up new skills in robot modelling and control, alongside following an interest in biologically inspired computing techniques including neural networks. For my dissertation, I utilised genetic algorithms with the pyBullet dynamics engine to model a bipedal walker, and find a suitable gait control strategy for a mechatronic system.

The University of Nottingham

**BSc (Hons) Mechanical Engineering**

**2011 – 2016**

1 year hiatus of studies in 2014-2015 whilst studying masters year

Returned to studies in 2015, changed course to BSc in 2016 due to health reasons.

**Graduated with a 2.1**

Bury Grammar School Boys VIth Form, Manchester

**A2-levels in Physics, Mathematics,**

**Systems and Control Technology, Chemistry, Further Mathematics**

**2009 – 2011**

2 As, 2 Bs, 1 C

## PREVIOUS EMPLOYMENT

Panic Family Circus, UK-wide Events Based in Bala, Gwynedd

**Workshop Coordinator**

**2009 – 2020**

I worked for over 10 years developing workshops in various circus skills for festivals and home education events of all sizes, as well as assembling big top marquees and performing in clown shows, trapeze shows and Punch & Judy puppet shows.

Self Employed, UK-wide

**Squash Court Installations, Refurbishments and Flooring**

**2016 – 2020**

I constructed 7 squash courts at the Nottingham University Sports Centre as a temporary worker, and then leveraged the contacts gained from this work to procure additional subcontracting work installing courts and sports floors nationwide.

J.A. Kent Services, Nottingham

**Landscaper**

**2015**

Undertook both soft and hard landscaping works, including whip and tree planting for a city wide tram construction project (NET phase 2). Additionally worked removing trees, laying turf, and digging to inspect for live services.

Burger King UK, Trinity Way Bolton, Gtr. Manchester

**Crew Member**

**2008 – 2011**

Worked throughout the restaurant in various roles taking responsibility for operating cash registers, food preparation and cleaning tasks.

## SOFTWARE PROFICIENCIES

**Python, C++, MATLAB, Embedded C (Arduino, ARM Cortex-M), Visual Basic, HTML, R** – Proficient in writing and debugging complex programs in all of the above languages.

**Rhino3D/Grasshopper, Solidworks, Pro Engineer/PTC Creo** – Proficient in designing and assembling 3D representations of products and mechanisms for CAD/CAM, parametric design, creating robot description format files for exporting robot models, simulation and optimisation.

**ROS, Moveit, Open Dynamics Engine, pyBullet** – Experienced in utilising the ROS and ROS2 middleware to construct functional robot cell models and test control strategies. Proficient in configuring physics engines for accurate simulation of dynamic robotics systems.

**Simulink** – Experienced in using Simulink to create and optimise system models for control.

**Github** - Worked in group projects relying heavily on collaborative continuous integration (CI) workflows.

**Microsoft Project** – Experienced in software aided project management, producing Gantt charts, PERT and risk analyses.

**Microsoft Office** - High proficiency in formation of engineering reports and presentations utilising Word, Excel, Powerpoint etc.

**INTERESTS**

I have been a part of the British Morris Dancing circuit since 1998, dancing various regional styles with different teams. I enjoy playing the double bass, in which I attained a grade 5, and more recently the ukulele. I am a keen water sports enthusiast, regularly taking part in activities such as rafting, kayaking and sailing. I also take an active interest in rock climbing and hiking. Whenever possible I like to practice my circus skills in juggling, diabolo, slack-rope and fire eating.

**REFEREES**

Available on request.