

Robert Siddall, PhD

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US Citizen with expertise in aerial robotics, a track record of developing innovative aircraft, and a broad skill set in hardware development.

Work Experience

Assistant Professor of Robotics, University of Surrey – Guildford, United Kingdom Sep 2020 – Sep 2024

- Secured \$1.8 million in funding for [novel robotics projects](#) in robotics by developing collaborations and writing grants
- Supervised autonomous unmanned aircraft and rocketry teams that were [national champions](#) three years running
- Organized an international [design competition](#) and turned publicly submitted ideas into working robot prototypes
- Rapidly tested [dozens of novel aircraft](#) by creating a robotic launch system synchronized to an on-board sensor stack
- Developed a custom 3D printer that uses generative design and computer vision to autonomously build and test wings

Research Fellowship, Max Planck Institute for Intelligent Systems – Stuttgart, Germany Feb 2019 – Sep 2020

- Discovered [new flight behaviors](#) by using computer vision and multibody simulation to analyze animal motion
- Proved biomechanical hypotheses by developing [robotic models](#) of lizards and squirrels (Solidworks/Matlab/Python)
- Used data-driven modeling to design a [controller for soft robots](#) with liquid strain sensing (Matlab/Simscape)

Lead Engineer, Haybeesee Robotics – London, United Kingdom Sep 2017 – Feb 2019

- Developed a prototype [aerial weedkilling robot](#) from scratch, which was able to locate and kill weeds <1 cm tall
- Patented a system for robotic inspection (*US Patent 11,599,127*)
- Led a team of 4 engineers who designed and built the most powerful jumping robot tested to date.

Researcher, Imperial College London – London, United Kingdom Mar 2013 – Mar 2018

- Created the first fixed wing drone able to both [swim and fly](#), which required custom pneumatics, composites, extensive simulation (Matlab) and wind tunnel testing (LabVIEW). Was awarded 'Best UK PhD in Robotics' for my work
- Designed and deployed novel drones for aerial repair, and won a [1 million AED prize](#) with the Buildrone team
- Designed a [valveless explosive thruster](#) system by modeling and simulating thermodynamics and launch dynamics
- Produced conceptual drawings and layout plans for a £1.2m [aerial robotics test facility](#), which opened in 2017

Skills

HARDWARE: Mobile Robots, Unmanned aircraft, Microcontrollers, Motor control, Wind tunnel testing, Embedded electronics, Aerodynamics, G-code/CNC, Traditional Machining, Composites, Rapid prototyping, Soft robotics

SOFTWARE: Matlab, Simulink, C++, Python, Fusion 360, PTC Creo, SolidWorks, SketchUp, LabVIEW, Abaqus, Adobe Suite

Awards and Honors

- Best UK PhD in Robotics, The Centre for Advanced Robotics at Queen Mary (ARQ)
- Winner, [Best Robot Video](#), 'Aquatic Micro Air Vehicles for Water Health Monitoring', AAI-17
- Winner (National Award), '[Buildrone](#)', UAE Drones for Good Competition, Dubai
- 2nd place for 'Crophopper', [Best Field Robot Concept](#), Future Farming, FIRA 2020
- Supervised winning team at the [IMEchE UAS Challenge](#) (1st: 2021 and 2022, 2nd: 2023)
- Supervised the [winners](#) of the Mach 23 Rocket Competition and UK SEDS Satellite Design competition in 2023 and 2024

Education

Imperial College London – Doctor of Philosophy (Aeronautics) 2018

University of Cambridge – Master of Engineering (Aerospace and Aerothermal Engineering) 2012