Robert Thomas

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EDUCATION

UNIVERSITY OF BATH
MEng in Integrated Mechanical and Electrical Engineering
2013-Ongoing | Bath, England

UNIVERSITY OF BATH
Department of Mathematics
2012-2013 | Bath, England

UNIVERSITY OF WATERLOO
Department of Mathematics
2011-2012 | Ontario, Canada

UNIVERSITY COLLEGE SCHOOL
Grad. May 2011 | London, England

SKILLS

PROGRAMMING
Confident:
Python • LaTeX • MATLAB • C
Utilised:
Lisp • HTML5 • PHP • Verilog

SOFTWARE
Drafting:
SolidEdge ST4
Simulation:
OrCAD • Simulink • MATLAB
Adobe CS6:
Photoshop • Illustrator •
After Effects • Premiere Pro

REFERENCES

Dr Jonathon du Bois:
j.l.du.bois@bath.ac.uk
Dr Pejman Iravani:
P.Iravani@bath.ac.uk

INTERESTS

Skiing | Competent Skier 20+ Weeks
RPG & Boardgames | Weekly social settings
Modeller | Construction and painting to a competent standard
Computers & Video Games | Have built multiple computers

ABOUT ME

I am currently a final year student at the University of Bath studying Integrated Mechanical and Electrical Engineering. In my spare time I enjoy playing social and tactical games and further exploring my interests, which I aim to the integrate within my degree.

EXPERIENCE

CALCOT MANOR - WESTONBIRT CAFE | Waiter
June 2016 - September 2016 | Gloucestershire, UK

PRIVATE WEBSITE DESIGN | Design + Maintenance
May 2014 - September 2015 | Gloucestershire, UK

THE AMERICAN MUSEUM CAFE | Waiter
June 2014 - September 2014 | Bath, UK

THE BLACK HORSE INN | Bartender / Waiter
May 2010 - September 2013 | Gloucestershire, UK
May 2016 - September 2016 | Gloucestershire, UK

SANTANDER UK PLC | Work Experience Credit Risk SGBM
Aug 2010 | London, UK

HEATH HANDS | Woodland Maintenance Volunteer
Sep 2009 - Aug 2011 | London, UK

ACCOLADES

2013	Bronze	Weston Karate Competition - Middleweight Kumite
2011	Merit	Euclid Math Challenge
2010	Silver	UKSMC
2009	Olympiad	UKIMC
2008	Gold	UKIMC
2007	Silver	UKIMC

CURRENT PROJECTS

TEAM BATH DRONES | System Manager
Responsible for all the systems to be used within TeamBathDrones competition drone that will fly in the Summer 2017 ImechE aUAS challenge.

FINAL YEAR PROJECT | Development of Visual Reconnaissance Systems for an aUAS
Continuing work done in the aUAS design group project I will be further refining the systems I started work on last year in addition to exploring more complicated filter and potential hardware integrations.

Robert Thomas

github.com/Robtom5

COMPLETED PROJECTS

AUTONOMOUS "MOUSE" WIRE FOLLOWER | Digital System Design

The design of a robotic "mouse" that follows a wire carrying an AC signal by measuring the surrounding electrical field. The final design incorporated an arduino control unit in addition to the analogue circuits used for signal filtering
Key Skills: C++ (Arduino), Analogue Circuit Design

AUAS DESIGN (GROUP) | Business Manager

Team business manager for a startup company aiming at launching an autonomous aerial vehicle within the next few years. Initial focus was in the disaster management sub-sector with the focus later shifting to the pipeline inspection market following market data. Key responsibilities included the development of the overall business plan and presenting it to both internal and external markers in a professional scenario.
Key Skills: Group and Project Management, Business Strategy

AUAS DESIGN (GROUP) | Sensors and Vision

Initial design and development of the sensing systems for use on an autonomous aerial drone. The drone was provisionally targeted to compete in the IMechE autonomous UAS challenge. Further development focused on the visual subsystem and possible methods of target recognition and verification
Key Skills: C++, Python (OpenCV)

DEVELOPMENT OF SHAPE RECOGNITION SYSTEM | Computation Intelligence

Creating a neural network and using a genetic algorithm to train it to recognise different distinct shapes.
Key Skills: Python

GEARBOX DESIGN + HAND DRAFT | Product Design

Design of a simple gearbox for a lawnmower with preselected gears. Design required the sizing and selection of bearings in addition to though with regards to final manufacture
Key Skills: Drafting, Design

GROUND-UP IMPLEMENTATION OF IMAGE PROCESSING FILTERS | Digital Image Processing

Attempting to implement a selection of point operator and group operator filters. Both linear and non-linear filters were successfully implemented in both Python and Matlab. Filters implemented include gaussian blur, median and histogram equalisation.
Key Skills: Python, Matlab

INTEGRATED PID FAN CONTROLLER | Coding

Design and implementation of a PID based controller for a small fan in C on an FPGa. Notably, interrupts were unavailable for use on the boards leading the design to require low runtimes to support frequent polling of all inputs and sensors
Key Skills: C

MODELLING AND SOLUTION FINDING FOR BALLISTIC AID RELIEF | System Modelling

Development of a simple model of the flight path for a ballistics aid delivery system including parachute deployment. Primarily based off of implementing the Runge-Kutta-45 method with an adaptive time step, the model was then incorporated to generate a firing solution based off of the trajectories required for a inputted target distance
Key Skills: MATLAB

MODELLING HEAT DISSIPATION WITHIN A HUMAN ARM | System Modelling

Development of a finite element model of a human arm to determine the desired characteristics of protective clothing for firefighters
Key Skills: MATLAB