

# Rob Welch

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hello@robwel.ch

www.robwel.ch

## SKILLS

**Strong and extremely varied computing background** - Git, Hg, LaTeX, sysadmin skills, Python (imperative, OOP and declarative styles, data analysis, data visualisation, GUI and CLI design and implementation, optimisation, refactoring, documentation and code maintenance), C++ (computer simulations and high-performance computing), and other general-purpose computing skills (GNU+Linux, CMake, HTML, CSS, JS/jQuery, XML, JSON, Raspberry Pi/Arduino, MS Office, PC building)

**Visual and user interface design** for websites and applications with complex inputs, user experience and usability design. Usability work shortlisted for the Engineering Development Trust's Future Industry Leaders Award. Gave presentation entitled 'Information Engineering' at STFC and ARUP headquarters on how user experience design can have a huge impact sales and customer satisfaction for technical institutions.

**Highly developed communication and writing skills** - visual communication, presentations, lab reports, technical whitepapers, code and process documentation, video production and editing, short stories. Ability to write with clarity, brevity and entertainment value on topics at any level.

**Teamwork, collaboration and interpersonal skills** - have worked in teams both large and small, crossing many disciplines - physicists, mechanical and electronic engineers, web developers, graphic designers, illustrators and musicians. Experience in working on relatively complex software projects using version control. Have led projects in engineering, design and software development. Strong organisational skills and a desire to optimise and improve collaborative workflow.

## EXPERIENCE

*Research Postgraduate*  
University of Leeds, UK

Oct 2016 - Present

- Currently developing a mesoscale simulation model for long chain proteins, by modelling them as fluctuating, extensible elastic rods.
- Investigating the application of current simulation technologies to the NDC80c kinetochore protein complex and its role in cell division.

*LED Test Engineer (full time, paid)*  
Sharp Devices Europe, Oxford, UK

Jul 2014 - Sep 2015

- Designed, executed, and documented procedure for LED thermal testing and performance optimisation, analysed data, produced technical documents and customer guides on thermal integration.
- Developed and maintained user-friendly GUI software tools relating to colour

science and analysis of optical measurements, including automatic PDF report generation and cutting-edge performance metrics. Also optimized, refactored and further developed software to measure the uniformity of LCD displays.

- Designed and developed fully functional prototype for LED department website (sharpleads.eu) from scratch, helped secure funding for full project. Worked collaboratively with designers and developers from Oxford-based web agency Electric Studio for final product.
- Helped customers troubleshoot problems with light fixture design and improve performance and lifespan of LEDs in real products.

*Technician*

2009

Nebula Computers Ltd, Coventry, UK (summer placement)

Computer repair, upgrades, maintenance, building.

## **UNIVERSITY**

*Bachelor of Science*, Physics, 1st Class Hons

University of Leeds, UK - 2012-2016

IOP-accredited Physics degree with experience in vector calculus, thermodynamics, photonics, computing, logic, biophysics and statistical mechanics. Fine-tuned problem solving and reasoning skills. Hands-on experience with a variety of experimental and computing projects. Experience of generating and parameterising models, running simulations and writing analysis tools for data from coarse-grained simulations of biological molecules using fluctuating finite element analysis. The results of these simulations have real research applications and have been presented internationally.

## **A-LEVELS**

Physics A-level grade A

Biology A-level grade A\*

Mathematics A-level grade B

Further Mathematics AS grade B

Psychology AS grade A

Philosophy AS grade A

## **GCSEs**

8 GCSEs at grades B-A\* including English Language A\* and Maths A\*.

## **INTERESTS**

In my spare time, I design and develop websites, write short stories, compose electronic music, and make retro-style video games.

## **REFERENCES**

*Dr Sarah Harris* - Researcher, University of Leeds

01133 433 816 / s.a.harris@leeds.ac.uk

*Dr Alastair Grundy* - Senior Project Manager, Sharp Devices Europe

01865 334 261 / alastair.grundy@sharp.eu