





# SAMUEL GONSHAW

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## RECENT

## EMPLOYMENT

### **BIOS Health Ltd.**

Embedded Systems Engineer, Cambridge, UK

2018–

- Architecture of embedded data collection systems for medical use.
- Embedded software development for IEC 62304 Class C devices.
- Design, development, test and deployment of FPGA solutions.
- Design, development, test and deployment of edge based software.
- Edge compute hardware scoping, management and onboarding.
- Integration with cloud systems and ML pipelines.
- Prototyping of cloud solutions for software deployment and data management.
- Authoring software lifecycle processes and supporting systems implementation.
- Collaborative development with multiple stakeholders.

### **Mathematics Tutor**

KS4-KS5 Freelance Tutoring

2022–2023

- Tutoring of GCSE and A-Level Mathematics on a 1–1 basis.

### **Toshiba America Storage Research Design Centre / OCZ Storage Solutions**

Senior Firmware Engineer, Oxford, UK / San Jose, CA

2015–2018

Firmware Engineer, Oxford, UK

2014–2015

- Design of enterprise SSD products based on multiprocessor ASIC architecture.
- Design of ASIC verification firmware for new IC design.
- Design and implementation of hardware abstraction libraries.
- Additional feature development for released products.
- Driver and test tooling development.
- Lifetime product support for released products.
- Designing and performing characterisation experiments on flash technologies.
- Liaising between geographically diverse teams on multidisciplinary development.

### **Imperial College London**

Research Assistant

2012–2015

- Individual research converting Masters thesis into publishable content.
- Python/MAGMA package creation for the Open Source SAGEMath project.
- Multi-threaded C application for weighted projective space characterisation.

## EDUCATION

Imperial College London

2010–2014

- MSci. incorporating BSc. ARCS 1<sup>st</sup> Class (Hons.) Mathematics

Birkat Moshe Talmudic Seminary

2007

- Jewish theology with emphasis on Talmudic texts.

## PUBLICATIONS

### **Online bayesian optimization of vagus nerve stimulation.**

Lorenz Wernisch et al. *J. Neural Eng.*, 21(2):026019, April 2024

### **Using neural biomarkers to personalize dosing of vagus nerve stimulation.**

Antonin Berthon et al. *bioRxiv*, 2023. doi: 10.1101/2023.08.30.555487

### **Unipotent class representatives for finite classical groups.**

S. Gonshaw, M. Liebeck, and E.A. O'Brien. *J. of Group Theory*, 20(3):505–525, 2017

**Further publications:** <https://orcid.org/0009-0009-4376-2711>

<b>PROGRAMMING AND TOOLING</b>	<b>Embedded</b>		
	C	Bare Metal/Multi-threaded Development	Fluent
	ARM, Xtensa ASM	Acceleration of Critical Paths	Intermediate
	fHDL	Python Generated FPGA Development	Intermediate
	Verilog, Vivado, Libero	FPGA Development and TCL Scripting	Intermediate
	<b>Applications</b>		
	C++	C++17/STL App and Driver Development	Fluent
	Python	Scripting and Scientific Computation	Fluent
	Configuration	YAML, XML, JSON	Intermediate
	Qt/QML	C++ Integrated UI Development	Familiar
	<b>Build and Test</b>		
	GTest	Unit Test Development	Fluent
	Make, CMake	Build management	Fluent
	Analysis/Debug	GDB, Valgrind, Prof, clang-format	Intermediate
	Docker	Build environment management	Intermediate
	Modelsim, Verilator	Wave debugging for FPGA/ASIC	Intermediate
	<b>Project Management</b>		
	Gitlab, Atlassian	Issue Tracking and Planning	Fluent
	Gitlab CI, Jenkins	CI/CD Frameworks	Fluent
	Git, SVN	Version Control Systems	Fluent
	<b>Platforms</b>		
	Linux	Module Development, Bash-fu, Tool Packaging	Fluent
	AWS	S3, Cloudfront, Route53, Lambda	Familiar
<b>Technologies</b>			
High Speed Buses	PCIe/NVMe, SATA, AMBA, USB, FT245	Intermediate	
Low Speed Buses	I2C, SPI, LVDS, JTAG, UART	Intermediate	
Embedded Systems	Jetson, Arduino, STM32, RPi, Rock64	Intermediate	
<b>Other</b>			
Mathematical	SAGE/MAGMA/GAP/MATLAB/Maple/L <sup>A</sup> T <sub>E</sub> X	Familiar	
Java/Kotlin	Android Development	Hobbyist	
Home Automation	HA, MQTT, ESPHome	Hobbyist	
Web	HTTP/JS/CSS	Hobbyist	
Angular	Frontend web	Hobbyist	
<b>OTHER EXPERIENCE</b>	<b>Advent of Code</b>	<i>Challenge Participant</i>	2021–2023
	<b>Imperial College London</b>	<i>Undergraduate Tutor</i>	2013–2014
	<b>Westminster City School</b>	<i>KS4-KS5 Teaching Assistant</i>	2013
	<b>Imperial College London</b>	<i>Colloquium Founder &amp; Speaker</i>	2012–2013
	<b>Mangahigh.com</b>	<i>Educational Content Author</i>	2010–2011
	<b>King David High School</b>	<i>Examinations Invigilator</i>	2010
	<b>Israeli Defence Forces</b>	<i>HR Coordinator / Infantry</i>	2008–2010
	<b>Lewis and Co. Solicitors</b>	<i>General Office Assistant</i>	2008, 2010
	<b>Jerusalem Foundation</b>	<i>Writer Internship</i>	2008
<b>Livnot U'Lehibanot</b>	<i>Painter/Decorator/Handyman</i>	2007	
<b>AWARDS</b>	<b>Mar 2014:</b> ICHACK Best E-learning Application, Most Monetizable Concept		
	<b>Sep 2010:</b> Outstanding Soldier of 933rd Training Base		
<b>OTHER SKILLS</b>	<b>Languages:</b> Fluency in English and Modern Hebrew.		
	<b>Agile:</b> Scrum Open Developer Qualification		