SAMUEL GONSHAW

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RECENT EMPLOYMENT

BIOS Health Ltd.
Medical device startup developing AI-powered embedded neural interfaces.
Embedded Systems Engineer, Cambridge, UK — 2018–

- Architecture of embedded data collection systems driving 25+ live medical trials.
- Scoping, onboarding and managing edge systems for multisite deployment.
- Development of C++/Qt desktop applications providing clinical interfaces.
- Compiled ISO 14971 risk register to provide accountability and product safety.
- Development of IEC 62304 Class C software unlocking clinical device use.
- Full lifecycle development of FPGA solutions for highly accurate data collection.
- Integration with cloud hosted Python ML pipelines unlocking novel data insights.
- Managing interns in embedded testing projects, expanding the team.
- Authoring software lifecycle processes and implementing supporting systems used to drive productivity and project management across teams in a new company.

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
Multinational developing SSDs for Consumer, Datacentre and Enterprise applications.
Senior Firmware Engineer, Oxford, UK / San Jose, CA — 2015–2018
Firmware Engineer, Oxford, UK — 2014–2015

- Design of bare metal C firmware for enterprise SSDs released to market.
- Design of ASIC verification firmware eliminating respin costs.
- Development of hardware abstraction libraries saving development costs.
- New feature development for old products revitalising sales.
- Linux driver and test tooling development improving device reliability.
- Lifetime product support for released products improving customer experience.
- 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 1st Class (Hons.) Mathematics

Birkat Moshe Talmudic Seminary — 2007

- Jewish theology with emphasis on Talmudic texts.

PUBLICATIONS

Using neural biomarkers to personalize dosing of vagus nerve stimulation.
Antonin Berthon et al. *Bioelectronic Medicine*, 10(1):15, Jun 2024

Online bayesian optimization of vagus nerve stimulation.
Lorenz Wernisch et al. *J. Neural Eng.*, 21(2):026019, April 2024

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

PROGRAMMING AND TOOLING	**Embedded**		
	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
	Applications		
	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
	Build and Test		
	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
	Platforms		
	Linux	Module Development, Bash-fu, Tool Packaging	Fluent
	AWS	S3, Cloudfront, Route53, Lambda	Familiar
	Technologies		
	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
	Project Management		
	Gitlab, Atlassian	Issue Tracking and Planning	Fluent
	Gitlab CI, Jenkins	CI/CD Frameworks	Fluent
	Git, SVN	Version Control Systems	Fluent
	Other		
	Mathematical	SAGE/MAGMA/GAP/MATLAB/Maple/LaTeX	Familiar
	Java/Kotlin	Android Development	Hobbyist
	Home Automation	HomeAssistant, MQTT, ESPHome	Hobbyist
	Web	HTTP/JS/CSS	Hobbyist
	Angular	Frontend web	Hobbyist

OTHER EXPERIENCE			
	Advent of Code	*Company Leaderboard Winner*	2021–2023
	Imperial College London	*Undergraduate Mathematics Tutor*	2013–2014
	Westminster City School	*KS4-KS5 Teaching Assistant*	2013
	Imperial College London	*Colloquium Founder & Speaker*	2012–2013
	Mangahigh.com	*Educational Content Author*	2010–2011
	Israeli Defence Forces	*HR Coordinator / Infantry*	2008–2010
	Lewis and Co. Solicitors	*General Office Assistant*	2008, 2010
	Jerusalem Foundation	*Writer Internship*	2008
	Livnot U'Lehibanot	*Painter/Decorator/Handyman*	2007

AWARDS
Mar 2014: ICHACK Best E-learning Application, Most Monetizable Concept
Sep 2010: Outstanding Soldier of 933rd Training Base

OTHER SKILLS
Languages: Fluency in English and Modern Hebrew.
Agile: Scrum Open Developer Qualification