

HENRY SHEEHY

September 8, 2025 | Latest: henrysheehy.com/cv

PhD Researcher, Theory of Quantum Materials Group, University of Kent

Founder, **QuantaLumin**

Tutor, **TutorLumin**

Employment and experience

- SEE ALSO [TEACHING](#).
- **FOUNDER TutorLumin**; JAN 2025–
REVOLUTIONISE YOUR LEARNING
 - EDUCATIONAL TECHNOLOGY PLATFORM, STEM COURSES AND TUITION
 - TEACHING SCHOOL BIOLOGY, CHEMISTRY, PHYSICS AND MATHEMATICS
- **FOUNDER QuantaLumin**; JUL 2024–
THE SYSTEM TO SIMPLIFY SCIENCE
 - PLATFORM FOR SCIENTIFIC COLLABORATION AND TOOLS
 - BESPOKE WEBSITES DEVELOPMENT AND HOSTING
- **RESEARCH ASSISTANT** SUPERCONDUCTIVITY; MAR–AUG 2021
CREATED A UNIX AND PYTHON-BASED SOFTWARE TO SIMULATE SUPERCONDUCTORS WITH UNCONVENTIONAL PAIRING MECHANISMS, SUCH AS MULTIORBITAL SPIN-TRIPLET PAIRING, INHOMOGENEOUS LATTICE GEOMETRIES, (MAGNETIC) IMPURITIES, SELF-CONSISTENTLY, IN THE MEAN-FIELD LIMIT.
CODE DOCUMENTATION AVAILABLE THEORIES OF TIME-REVERSAL SYMMETRY-BREAKING SUPERCONDUCTORS, PHYSICS OF QUANTUM MATERIALS GROUP, UNIVERSITY OF KENT; WITH **DR JORGE QUINTANILLA**
- **RESEARCH PROJECT** QUANTUM COMPUTING; AUG–OCT 2017
TESTS TO DETERMINE WHETHER THE D-WAVE QUANTUM COMPUTER OPERATES QUANTUM MECHANICALLY OR CLASSICALLY, WITH DR ITAY HEN UNIVERSITY OF SOUTHERN CALIFORNIA

Education

- **PHD THEORETICAL PHYSICS** SEP 2018–OCTOBER 2025
PHYSICS OF QUANTUM MATERIALS GROUP (UNCONVENTIONAL SUPERCONDUCTORS); UNIVERSITY OF KENT
THESIS (TENTATIVE TITLE): *QUASIPARTICLE INTERFERENCE SIMULATION OF NON-UNITARY SPIN-TRIPLET MULTIORBITAL SUPERCONDUCTIVITY (SUPERVISED BY DRS JORGE QUINTANILLA AND SAM CARR)*
- **MSci JOINT HONOURS – FIRST CLASS** 2014–2018
THEORETICAL PHYSICS WITH MATHEMATICS; LANCASTER UNIVERSITY
THESIS: *QUANTUM DISCORD AS A MEASURE OF NONLOCAL CORRELATIONS IN A MAJORANA-BASED DEVICE (WITH DR ALESSANDRO ROMITO)*
EXCHANGE YEAR, UNIVERSITY OF IOWA; WITH PROJECT WITH **PROF. CRAIG PRYOR**: *COARSE GRAINING THE TIGHT-BINDING MODEL*; 2016–2017
- **EUROPEAN BACCALAUREATE – 81.75% OVERALL** 2003–2014
HIGHER MATHEMATICS 91.0% (WITH 97.5% IN FINAL EXAM), ADVANCED MATHEMATICS, PHYSICS 85.3% (95.5% IN FINAL EXAM), CHEMISTRY 81.0%, ENGLISH 84.2%, FRENCH, PHILOSOPHY, GEOGRAPHY, HISTORY, LABORATORY PHYSICS, PHYSICAL EDUCATION.

Computing-based projects

- **QUANTUM SIMULATION OF UNCONVENTIONAL SUPERCONDUCTORS**
CODE TO BE PUBLISHED IN NEAR-FUTURE AFTER SCIENTIFIC PUBLICATIONS.
- **MAINTAIN A LINUX OPERATING SYSTEM**
STREAMLINE TECHNICAL WORK (BASED ON VIM PRINCIPLES) AND FAVOURING COMMAND-LINE INTERFACE.
USED FOR RESEARCH AND PEDAGOGICAL APPLICATIONS.
- **ARDUINO COMMAND-LINE INTERFACE PROJECTS**
OVERSEEING ARDUINO PROJECTS WITH PRECOCIOUS SCHOOL AND UNIVERSITY STUDENTS, AVOIDING USE OF GRAPHICS USER-INTERFACE AND INTEGRATED DEVELOPMENT ENVIRONMENTS, IN FAVOUR OF COMMAND-LINE, LOW-LEVEL PROGRAMMING.
- **MOLECULAR BIOPHYSICS SIMULATION WITH PROFESSOR NEIL KAD: MYOFIBRIL BANDS.**
WROTE A PYTHON-BASED SOFTWARE *MyoBAND* (SEE REPOSITORIES **GITHUB** AND **PYTHON REPOSITORY**).
- **STEM-CELL BRANCHING MORPHOGENESIS SIMULATION**; MATHEMATICA

Languages

HUMAN

- **ENGLISH** NATIVE, **FRENCH** PROFESSIONAL PROFICIENCY, **SPANISH** ELEMENTARY PROFICIENCY, **PORTUGUESE** COMPREHENSION, **MANDARIN** PERSONAL TUITION WITH **KENT CHINESE MANDARIN SCHOOL**, **RUSSIAN UNIVERSITY OF KENT LANGUAGE EXPRESS COURSE** 2022–2023.

MACHINE

PROGRAMMING PHILOSOPHY: I ENJOY THE ABSTRACTION AND CLARITY OF SCRIPTING LANGUAGES, BUT AM UNAFRAID TO SPEAK TO THE PROCESSOR.

- **PYTHON** SOFTWARE DEVELOPMENT FOR QUANTUM SIMULATION. DEEP UNDERSTANDING OF **OOP** AND ROBUST USE OF TYPES. I'VE CUSTOM CONFIGURED NUMPY AND PYTORCH'S BLAS LIBRARIES TO PUSH THE LIMITS OF LARGE MATRIX CALCULATIONS.
- I WROTE AND MANAGE A **LINUX CUSTOM OPERATING SYSTEM** TO ACCELERATE SCIENTIFIC RESEARCH AND STUDY, BASED ON **VIM** PHILOSOPHY. PERSONAL SERVICES ACROSS THE MACHINE ARE ORCHESTRATED WITH **RUNIT** SCRIPTS, AND PACKAGES ARE MAINTAINED WITH **ARTIX**.
- **BASH** SCRIPTING OF QUANTUM SIMULATION AND SERVER ADMINISTRATION
- **WEB SERVER** HOSTING, TRANSFER PROTOCOLS (**HTTPS/SSL**, **SSH**), **UNIX** SECURITY, FRONTEND (**HTML**, **CSS**, **SASS**, **JS**, **VUE**), BACKEND (**PHP** FOR FORMS, **HUGO**, **BASH**, **SQL** ADMINISTRATION), EMAIL SELF-HOSTING (**POSTFIX** & **DOVECOT** SERVERS, ENCRYPTION), CLOUD SELF-HOSTING. SEE **EXAMPLES** OF MY WEBSITES.
- **LaTeX** WITH **NeoVim** AND **MARKDOWN** (SEE MY **NOTES**).
- **KMONAD LISP:** I WROTE A CUSTOM KEYBOARD TO ACCELERATE TYPING IN MULTIPLE LANGUAGES –HUMAN, MATHEMATIC AND CODE.
- EXPERIENCE WITH **MATHEMATICA** (STEM CELL RESEARCH), **ASSEMBLY** (FOR ARDUINO MICROCONTROLLER), **GIT** (I HOST A **GITEA INSTANCE** FOR COLLABORATORS AND STUDENTS)
- **BLENDER**, **LUMA AI**, AND **THREE.JS** FOR 3D MODEL RENDERING ON WEBSITES (SEE **CANTERBURYBALLET.CO.UK**)
- **R**, **CSV** (EXCEL) DATA ANALYSIS PROJECTS AT MY ALMA MATER.
- **PERL**, **LUA**, **VIMSCRIPT**, **AWK**, **REGEX:** THE LINUX RABBIT HOLE.
- **C**, **C++**, **FORTRAN**, **CUDA**, **VULKAN**, **MAKEFILES**. I HAVE EXPERIENCE WITH LOW-LEVEL LANGUAGES FROM LINUX SYSTEM MANAGEMENT, WRITING AN ARDUINO COMPILER (ONGOING), AND UNDERSTANDING THE BACKEND OF HIGH-LEVEL LANGUAGE LIBRARY KERNELS.

Volunteering

- **QUANTALUMIN YOUTUBE CHANNEL** JULY 2025–
POPULARISING AND TEACHING PHYSICS; SHOWCASING THE SCIENTIFIC REVOLUTION THROUGH THE LATEST STORIES IN SCIENCE, TECH AND DESIGN
- **COMMUNICATIONS AND OPERATIONS** 2023–2024
BOXING CLUB, UNIVERSITY OF KENT
- **SOCIAL SECRETARY** ; 2022–2023
KENT GYMNASTICS CLUB, UNIVERSITY OF KENT
- **SOCIAL EVENT** ORGANISER; DECEMBER 2022
PHYSICS OF QUANTUM MATERIALS, UNIVERSITY OF KENT
- **IOP PLANCKS** MARKER; 2019; "PHYSICS LEAGUE ACROSS NUMEROUS COUNTRIES FOR KICK-ASS STUDENTS"; INSTITUTE OF PHYSICS
- **JOURNAL CLUB** ORGANISER; 2019–2021
PHYSICS OF QUANTUM MATERIALS, UNIVERSITY OF KENT
- **BIOPHYSICS CLUB** CREATED AND ORGANISED; 2019–2020
PHYSICS OF QUANTUM MATERIALS, UNIVERSITY OF KENT
- **UNCONVENTIONAL SUPERCONDUCTORS: NEW PARADIGMS FOR NEW MATERIALS;** INTERNATIONAL WORKSHOP; ASSISTED WITH ORGANISATION; COSENER'S HOUSE, ABINGDON, 24-25 SEPTEMBER 2018
- **STUDENT AMBASSADOR** TRAVEL ABROAD; 2017–2018
PHYSICS DEPARTMENT; LANCASTER UNIVERSITY
- **ACTION DAMIEN** RAISED FUNDS FOR LEPROSY AND TUBERCULOSIS WITH CLASSMATES FROM SCHOOL, CULMINATING IN A VISIT TO ACTION DAMIEN IN PONDICHERRY, INDIA; 2013

Teaching

- **LEAD TUTOR** JULY 2025–
STEM CLINIC, TUTORLUMIN WEST SUSSEX, UNITED KINGDOM
- **MENTOR** 2023–2024
PRIVATE TUTORING, CANTERBURY SUBJECTS: PHYSICS, MATHEMATICS, CHEMISTRY AND BIOLOGY (GCSE AND A-LEVEL)
- **A-LEVEL MENTOR** 2022–2024
SUBJECTS: PHYSICS AND BIOLOGY (A-LEVEL) OUTREACH, UNIVERSITY OF KENT
- **GRADUATE TEACHING ASSISTANT** 2018–2023
PHYSICAL SCIENCES, UNIVERSITY OF KENT
- **UNDERGRADUATE TEACHING ASSISTANT** 2016–2017
DEPARTMENT OF MATHEMATICS, UNIVERSITY OF IOWA
- **INSTRUCTOR** COMPUTING; 2015
CAMP MONROE, NEW YORK

Talks

- **DIALECTICS OF NATURE**; PHYSICS OF QUANTUM MATERIALS JOURNAL CLUB; UNIVERSITY OF KENT; 2022
- **MULTIORBITAL SPIN-TRIPLET SUPERCONDUCTIVITY IN THE SSH MODEL**; PHYSICS OF QUANTUM MATERIALS DISCUSSION GROUP; UNIVERSITY OF KENT; 2021
- **INTRODUCTION TO BRANCHING MORPHOGENESIS**; PHYSICS OF QUANTUM MATERIALS DISCUSSION GROUP; UNIVERSITY OF KENT; 2020
- **TIME-REVERSAL SYMMETRY BREAKING IN SUPERCONDUCTORS**; 3MT, UNIVERSITY OF KENT; 2019

Posters

- **ExoSup 2022, CARGÈSE SUMMER SCHOOL ON EXOTIC SUPERCONDUCTIVITY**; FROM HARD-SURFACES TO SOFT-CLUSTERS: WATCHING MAJORANAS WITHER AND DIE; JUNE 2022
- **IOP CONDENSED MATTER AND QUANTUM MATERIALS (CMQM 2021)**; SIMULATED QUASIPARTICLE INTERFERENCE FOR NON-UNITARY SPIN-TRIPLET MULTIORBITAL SUPERCONDUCTIVITY WITH IMPURITIES; JUNE 2021

Awards

- **MICTACS GLOBALINK** EXCHANGE SCHOLARSHIP
FUNDING FOR THREE MONTH EXCHANGE AT MCMASTER UNIVERSITY, ONTARIO, CANADA. PROJECT: SEARCHING FOR CAUSATICS IN FERMIONIC SYSTEMS; 2022.
- **VICE CHANCELLOR'S SCHOLARSHIP** FULL PhD SCHOLARSHIP
AWARDED TO OUTSTANDING APPLICANTS ABLE TO DEMONSTRATE A HIGH LEVEL OF ACADEMIC ACHIEVEMENT, EXCELLENT COMMUNICATION SKILLS, AND THE POTENTIAL TO MAKE A STRONG CONTRIBUTION TO THEIR CHOSEN FIELD OF RESEARCH; 2018–2022
- **AUTUMN SCHOOL ON CORRELATED ELECTRONS** FORSCHUNGSZENTRUM JULICH
AWARDED FUNDING FOR TRAVEL, ACCOMMODATION AND ATTENDANCE; 2019
- **THREE MINUTE THESIS (3MT) COMPETITION** – SECOND PLACE
TIME-REVERSAL SYMMETRY BREAKING IN SUPERCONDUCTORS; PRIZE: TRAVEL AND ATTENDANCE OF A CONFERENCE FUNDING –USED TOWARDS *PHYSICS BY THE LAKE 2019*; 2019
- **SCHOOL TRIP TO CERN** AWARDED ON MERIT; 2013

Extracurricular

- **BOXING AND SELF-DEFENCE**, UNIVERSITY OF KENT BOXING CLUB; 2023–2024
- **GYMNASTICS** UNIVERSITY OF KENT GYMNASTICS CLUB, FLOOR, VAULT, RINGS; 2022–2023
- **KARATE** GKR, YELLOW BELT 2021
- **ROWING** LANCASTER UNIVERSITY LUBC, UNIVERSITY OF KENT UKCRC; 2017–2020
- **DIVING** QUALIFIED PADI RESCUE DIVER
- **RUGBY** BRUSSELS CELTIC RFC, STANDARD d'UCCLE, UNIVERSITY OF IOWA RC, LANCASTER UNIVERSITY LU RFC; 2003–2017