

Nicola R. Sharp

Resume

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📍 Boston, USA

Computational Neuroscience Enthusiast with Passion for Advocacy

Versatile, energetic, and result-oriented graduate student driven to explore innovative solutions in healthcare.

Skills

- Programming, Machine Learning (Python (main), MATLAB, R)
- Data Analysis (Excel, GraphPad)
- Data Visualization (Python, etc.)
- Laboratory skills (PCR, gel electrophoresis, cell culture, etc.)
- Data Privacy and Management
- Literature Review and Research
- Graphic Design (Photoshop, Canva, BioRender, etc.)
- Public Communication, Marketing
- Teamwork and Collaboration

Career Experience

Translational Neuroscience & Dementia Research Group | Undergraduate Researcher Jan 2023 – May 2023

Department of Psychiatry, University of Oxford, Oxford, UK (Part-Time, On-Site)
Laboratory headed by Professor Noel Buckley. Supervised by Dr Helen Rowland.

- High-content immunofluorescence imaging (Opera Phenix®) of astrocytes differentiated from patient-derived induced pluripotent stem cell (iPSC) lines. Included glial marker selection and Harmony® AI analysis sequence design.
- Designed and coded machine learning analysis of large (>80,000 cells), multi-dimensional dataset in Python (Visual Studio), including morphological and protein expression data. Steps included data preprocessing, dimensionality reduction, cluster analysis, data visualization, statistical analysis, and links with genetic risk and treatment.
- Wrote research thesis and created graphical abstract in BioRender.

Alt Laboratory | Summer Research Intern Jul 2022 – Oct 2022

Program in Cellular and Molecular Medicine (PCMM), Boston Children's Hospital, Harvard Medical School
Boston, MA, USA (Full-Time, On-Site)

Laboratory headed by Dr Frederick Alt. Supervised by Dr Zhuoyi Liang.

- Research focus on antibody development, with wider applications in antibody therapy and vaccine development.
- Used CRISPR-Cas9 to modify the V region and investigate its effects on V(D)J recombination.
- Designed and evaluated oligo primers using SnapGene.
- Conducted and troubleshooted bacterial transformation and selection with ampicillin.
- Generated cell lines via viral transfection, and nucleofection using Lonza 4D-Nucleofector® System.
- Conducted Taq PCR and gel electrophoresis to confirm successful gene uptake.
- Maintained cell lines (culturing/passaging).

Translational Neuroscience & Dementia Research Group | Undergraduate Researcher Mar 2021 – July 2021

Department of Psychiatry, University of Oxford, Oxford, UK (Part-Time, On-Site)
Laboratory headed by Professor Noel Buckley. Supervised by Dr Helen Rowland.

- Conducted RNA extraction, reverse transcription, and real-time polymerase chain reaction (qPCR) experiments to quantify gene expression across different Alzheimer's disease patient iPSC-derived cells and treatment conditions.
- Experimented with methods of protein quantification, including Western blot, BCA (bicinchoninic) protein assay and immunohistochemistry.
- Statistical analysis of gene expression in GraphPad Prism.

The State Key Laboratory of Molecular Neuroscience

The Hong Kong University of Science and Technology (HKUST), Hong Kong SAR

Laboratory headed by Professor Nancy Ip. Supervised by Dr Fred Zhou and Yuanbing Jiang.

Student Lab Research Assistant (Full-Time, On-Site)

Jun 2019 – Oct 2019

- Conducted experiments (e.g., gel electrophoresis, PCR) independently and without supervision.
- Assisted with experiments including brain sample collection and measuring long-term potentiation.
- Expanded the laboratory's toolkit by testing new apparatus and protocols, including: Nanopore sequencing, which allows a single molecule of DNA or RNA to be sequenced without the need for PCR; and DNA extraction from saliva (versus blood) samples, allowing for non-invasive patient genotyping.

Student Lab Intern (Part-Time, On-Site)

Sep 2018 – May 2019

- Youngest student intern in the laboratory's history. Research focus was on Alzheimer's disease.
- Worked directly with the Chair Professor, Research Associate Professor and PhD scientists.
- Through shadowing, became familiar with and proficient in PCR and ELISA.
- Literature review, using scientific databases and journals, to provide information for ongoing studies.

Community & Sustainability

Amirah Inc. | Volunteer

Dec 2023 – Present

Massachusetts, USA

- Massachusetts non-profit supporting people who have experienced commercial sexual exploitation and prostitution.
- Assisting with website, social media, and engagement.
- Supporting community events and advocacy initiatives.

It Happens Here Oxford | Co-Chair and Webmaster

Jan 2022 – Jun 2023

Oxford University Student Union (Oxford SU), The University of Oxford, England (Part-Time, Hybrid)

Led a successful social impact group via collaborations and active engagement with national and university-level UK policy leaders, student unions and representatives, and media, towards policy changes and programs.

- Represented survivors of sexual violence at the university.
- Co-led a team of 15+ committee members.
- Oversaw campaign's fight for and success in banning: universities from using non-disclosure agreements (NDAs) against students reporting violence, harassment or abuse (nationwide); staff-student relationships (Oxford University).
- Consulted on university disciplinary policy and various research studies.
- Experience organizing community events, speaking with journalists and drafting campaign statements.
- Co-managed online presence, including design of www.ithappenshere.co.uk (and SEO optimization), social media.

St Hugh's College | Welfare Project Leader

Oct 2021 – Nov 2021

- Designed and acquired funding for informational cards for 800+ students, raising awareness of welfare services.

Bethune House Migrant Women's Refuge | Anthropology Research Project

Jun 2018 – Oct 2018

Hong Kong SAR (Part-Time, On-Site)

- Visited refuges and interviewed and surveyed 20+ domestic helpers escaping abuse.

Education & Credentials

Harvard Medical School, Harvard University

2023 - 2024

Master of Science in Media, Medicine and Health

Activities and societies: i-Lab, Science in the News, Arete Fellowship, Psychedelic Society, MIT Sailing

- The only master's degree program in the United States to offer an interdisciplinary approach to science, medicine, anthropology, public health, and media.

St Hugh's College, University of Oxford

2019 - 2023

Bachelor's Degree: Biomedical Sciences (Neuroscience) | Upper Second-Class Honours (2.1)

Activities and societies: Medical Sciences Division (Undergraduate Representative), Biomedical Sciences (Course Representative, Years 2 and 3), Oxford University Society of Biomedical Sciences (Head of Marketing and Technology), The Oxford Scientist (Sub-Editor), Cortex Club (Undergraduate Representative), It Happens Here (Co-Chair).

- Studied cellular, systems, cognitive and computational neuroscience, including: reactive astrocytes in disease; dopamine in reward signalling; protein misfolding in neurodegeneration; disorders of attention and motivation; etc.
- Practical laboratory work, essay writing, statistical analysis, and programming in MATLAB and Python.
- First class honours for literature review on dopamine ramping.

German Swiss International School

International Baccalaureate (IB) | 44/45 (top 1% of students globally)

2017 - 2019

Activities and societies: fundraising (art classes/sales and run for girls' rights), Senior Girls' Hockey, Entrepreneurship Club

- Top marks (7) in
 - Higher Level: Biology, Chemistry, and Social & Cultural Anthropology.
 - Standard Level: English Literature, German, and Mathematics.
- And 2/3 in core (Theory of Knowledge and Extended Essay).

Languages & Interests

- **English:** Native
- **German:** Advanced (Sprachdiplom B1, plus highest possible grades in: IB Standard Level, AS Level, IGCSE)
- **Spanish:** Beginner
- Interests: sailing, freediving, drawing, oil painting, running.