

# Dr Kenneth Y. WERTHEIM

## SUMMARY

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CITIZENSHIP: British citizen  
EMAIL: [kywertheim@protonmail.com](mailto:kywertheim@protonmail.com)  
WEBSITE: <https://www.kywertheim.com>

I am a systems theorist with expertise in mathematical modelling, scientific computing, and artificial intelligence. Biological and social systems are my main interests, but I build AI applications too. Outside academia, I advocate social justice and teach yoga.

•**Modelling and Simulation.** Multiscale modelling, multiphysics modelling, differential equations, agent-based modelling, Boolean networks, multicellular simulation, and social simulation.

•**Artificial Intelligence.** Supervised learning, unsupervised learning, reinforcement learning, computer vision, natural language processing, generative AI, agentic AI, and genetic algorithms.

•**Computer Skills.** Python, MATLAB, R, SQL, Cypher, LaTeX, COMSOL, Git, and Linux.

•**Communication Skills.** English (5/5), Cantonese (4/5), Mandarin (3/5), Toki Pona (3/5), German (2/5), yoga instruction (200RYT), and mental health first aid (MHFAider®).

## SELECTED ACHIEVEMENTS TO DATE

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•Published 12 peer-reviewed papers on topics in oncology, cancer biology, immunology, developmental biology, medicinal chemistry, tissue engineering, and computer vision.

•Built the first multicellular computational model of neuroblastoma.

•Devised a multi-approach and multi-scale method to model the immune system.

•Proposed a theory about the chemical basis of lymphangiogenesis.

•Co-founded a degree variant titled MSc Artificial Intelligence for Engineering at the University of Hull.

•Honoured by the Mensa Foundation with the International Intellectual Benefits to Society Award.

•Awarded around £3.2m to fund my education and research on five continents.

## EDUCATION

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APR 2025 **PCAP**, POSTGRADUATE CERTIFICATE IN ACADEMIC PRACTICE, **University of Hull**, the UK  
FEB 2017 **PhD**, BIOENGINEERING, **University of Southampton**, the UK  
Thesis title: *Mathematical Modelling of Lymphangiogenesis*  
DEC 2013 **MS**, CHEMICAL ENGINEERING, **Columbia University**, the USA  
GPA: 3.60/4.00  
JUN 2012 **MEng**, CHEMICAL ENGINEERING, **Imperial College London**, the UK  
First-class honours  
JUN 2011 **Exchange Year**, CHEMICAL ENGINEERING, **University of Sydney**, Australia  
First-class honours  
MAY 2008 **International Baccalaureate (IB)**, **Sevenoaks School**, the UK  
IB score: 44/45

## RESEARCH AND DEVELOPMENT EXPERIENCE

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JAN 2023 NOW	<p><b>Principal Investigator</b>, UNIVERSITY OF HULL, the UK <i>Interdisciplinary Research Programme</i></p> <ol style="list-style-type: none"><li>1. Systems biology, computational social science, and applied artificial intelligence.</li><li>2. Neuroblastoma, evolutionary therapy, thrombosis, unequal societies, language cognition, 3D modelling, differential equations, agent-based modelling, and deep learning.</li><li>3. Secured around £3m from the Medical Research Council. Secured a DAIM PhD studentship and helped a visiting PhD candidate secure a scholarship from the China Scholarship Council.</li><li>4. Established a collaboration with St. Anna Children's Cancer Research Institute (Dr Sabine Taschner-Mandl) in Austria and Hull York Medical School (Dr Simon Calaminus).</li><li>5. Supervising three PhD candidates (Francesca Covell, Gulraiz Khan, and Linhao Chen).</li></ol> <p><i>MSc dissertation projects</i></p> <ol style="list-style-type: none"><li>1. Proposed and/or supervised 41 projects in artificial intelligence, including collaborative projects with the NHS, Spencer Group, Lampada Digital Solutions, and Hull York Medical School.</li><li>2. Medical image classification, patient record classification, speech recognition, sport science, game development, fintech, optical character recognition, image captioning, multimodal sentiment analysis, retrieval-augmented generation, image generation, image segmentation, social simulation, rocket ascent modelling, and bioinformatics.</li><li>3. Four students won the Best MSc Research Project Prize.</li></ol>
FEB 2019 JAN 2023	<p><b>Project Supervisor</b>, UNIVERSITY OF SHEFFIELD, the UK</p> <ol style="list-style-type: none"><li>1. Conceived an independent research programme and secured funding.</li><li>2. Established international collaborations with Dr Fabio Dercole from the Polytechnic University of Milan in Italy and Dr Sabine Taschner-Mandl from St. Anna Children's Cancer Research Institute in Austria.</li><li>3. Supervised or co-supervised six undergraduates (Jack Ashurst, Abigail Barlow, Rory Deignan, Daniel Jordan, Ritvik Mehra, and Alvaro Andre Yupanqui Rivera), one master's student (Melody Parker), and one PhD candidate (Matteo Italia).</li><li>4. Optimised chemotherapy for neuroblastoma based on evolutionary principles.</li><li>5. Modelled MYCN's interactions with the ARF/MDM2/p53 axis to solve the MYCN enigma.</li><li>6. Modelled intracellular mechanisms regulating neural crest development.</li><li>7. Ordinary differential equations, genetic algorithm, Apriori algorithm, probabilistic Boolean networks, and Tarjan's strongly connected components algorithm.</li></ol>
FEB 2019 JAN 2023	<p><b>Computational Oncologist</b>, UNIVERSITY OF SHEFFIELD, the UK <i>Supervisor: Dr. Dawn Walker</i></p> <ol style="list-style-type: none"><li>1. Predictive <i>in Silico</i> Multiscale Analytics to Support Cancer Personalised Diagnosis and Prognosis, Empowered by Imaging Biomarkers (PRIMAGE). 10 million-euro Horizon 2020 project involving 16 institutions from eight countries.</li><li>2. Built the first multicellular computational model of neuroblastoma. Built surrogate models by multiple linear regression and deep learning.</li><li>3. GPU-accelerated virtual drug trials on the Bessemer high-performance computing cluster to propose an unconventional therapy based on targeting p53's regulators.</li><li>4. Collaborated with the University of Zaragoza, University of Bologna, and Chemotargets SL to integrate my model with their organ-scale and single-cell models with a new scale separation approach.</li><li>5. Co-supervised an undergraduate student (Will Shaw) who reviewed the literature about diffuse intrinsic pontine glioma (DIPG).</li><li>6. Supervised an undergraduate student (Luke Jones) who modelled DIPG's clonal evolution and invasive spread in a biological lattice-gas cellular automaton.</li><li>7. Other techniques: Latin hypercube sampling, dimensionality reduction, clustering, and hypothesis testing.</li></ol>

## RESEARCH AND DEVELOPMENT EXPERIENCE (CONTINUED)

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MAR 2017	<b>Computational Biologist</b> , UNI. OF NEBRASKA-LINCOLN, the USA
JAN 2019	<i>Supervisor: Prof. Tomas Helikar</i> <ol style="list-style-type: none"><li>1. Built a multiscale and compartmental model of CD4+ T lymphocytes by using agent-based modelling, Boolean networks, constraint-based modelling, and ordinary differential equations.</li><li>2. Wrote a simulation algorithm and predicted switch-like and oscillatory behaviours for CD4+ T lymphocytes from the results. Monte Carlo method, Kolmogorov-Smirnov test, linear programming, and finite difference method.</li><li>3. Added more agent types to the model, including neutrophils, macrophages, dendritic cells, basophils, and CD8+ T lymphocytes.</li><li>4. Supervised two PhD candidates (Aimee Kessell and Sydney Townsend) and three undergraduate students (Alyssa La Fleur, Robert Moore, and Bailee Lichter).</li></ol>
FEB 2014	<b>PhD Candidate</b> , UNIVERSITY OF SOUTHAMPTON, the UK
FEB 2017	<i>Supervisor: Prof. Tiina Roose</i> <ol style="list-style-type: none"><li>1. Constructed a reaction-diffusion-convection model; its 15 partial and ordinary differential equations describe the dynamics of VEGFC, MMP2, TIMP2, collagen I, and MT1-MMP in the zebrafish embryo. Computer simulations in COMSOL (finite element method).</li><li>2. Simplified the model to four equations and wrote an algorithm to sample the parametric space to perform Turing pattern analysis.</li><li>3. Proposed a theory about the chemical basis of lymphangiogenesis.</li></ol>
SEP 2012	<b>Graduate Research Assistant</b> , COLUMBIA UNIVERSITY, the USA
DEC 2013	<i>Molecular Simulation of Nucleosomes</i> <i>Supervisor: Dr. Vanessa Ortiz</i> <p>Helped a senior colleague study the effects of DNA methylation on nucleosome formation. MD simulations and alchemical FEP calculations in NAMD. TCL scripting.</p> <i>Image and Quantitative Analysis of SNARE-Mediated Membrane Fusion</i> <i>Supervisors: Prof. Ben O'Shaughnessy and Dr. Ben Stratton</i> <p>Used Speckle TrackerJ (ImageJ plugin) to analyse TIRFM images of SNARE-mediated membrane fusion in a microfluidic setup.</p>
OCT 2011	<b>MEng Student</b> , IMPERIAL COLLEGE LONDON, the UK
DEC 2011	<i>Supervisor: Prof. Cleo Kontoravdi</i> <p>Used ordinary differential equations to model the unfolded protein response. Ran gPROMS-aided computer simulations of the progression of Alzheimer's disease.</p>
JUL 2011	<b>IAESTE Intern</b> , UNIVERSIDAD NACIONAL DE LA PLATA, Argentina
SEP 2011	<i>Supervisors: Prof. Eduardo Castro, Prof. Pablo Duchowicz, Dr. Andrew Mercader</i> <p>Built 10 QSAR models by multiple linear regression to predict the activities of tacrine-related acetylcholinesterase inhibitors in the treatment of Alzheimer's disease.</p>
NOV 2010	<b>Intern</b> , UNIVERSITY OF SYDNEY, Australia
MAR 2011	<i>Supervisors: Prof. Hala Zreiqat and Dr. Iman Roohani</i> <p>Prepared strontium-doped magnesium silicate scaffolds for bone tissue engineering and characterised them by X-ray diffraction.</p>

## TEACHING EXPERIENCE

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JAN 2023 NOW	<p><b>Lecturer, UNIVERSITY OF HULL, the UK</b> <i>MSc Artificial Intelligence and Data Science</i></p> <ol style="list-style-type: none"><li>1. This fast-track conversion course allows graduates from all academic backgrounds to launch a career in artificial intelligence (AI) and data science.</li><li>2. Taught Applied AI in Summer 2023 and Spring 2024. Promoted to module leader in Autumn 2024. Supervised, unsupervised, and reinforcement learning algorithms. Computer vision and natural language processing applications.</li><li>3. Gave guest lectures on cancer modelling in Research and Application in AI and Data Science (Spring 2023, Summer 2023, and Spring 2024).</li></ol> <p><i>MSc Artificial Intelligence for Engineering</i></p> <ol style="list-style-type: none"><li>1. Co-founded this variant degree for mathematically inclined students in 2025.</li><li>2. Designed and built a module titled Numerical Methods for Engineering, including the lecture slides, programming exercises, and assessments.</li><li>3. Led and taught the module in Spring 2025. Linear algebraic equations, non-linear algebraic equations, numerical differentiation, interpolation, curve fitting, quadrature, initial value problems, boundary value problems, and eigenvalue problems.</li></ol> <p><i>Public engagement and pastoral duties</i></p> <ol style="list-style-type: none"><li>1. Worked with STEM Learning and Direct Education Business Partnership to arrange research placements for 11 disadvantaged Year 12 students in 2024 and 2025.</li><li>2. Provided support to 79 personal supervisees in their personal, academic, and professional development.</li></ol>
NOV 2023 NOW	<p><b>Yoga Teacher, YOGA PONA</b></p> <ol style="list-style-type: none"><li>1. Set up a yoga business and branded it with its own name and logo.</li><li>2. Designed and built a website. Prepared other promotional materials.</li><li>3. Planned and taught <i>vinyasa</i> yoga classes catering to various needs and experience levels. Energising sessions for motivation, meditative sequences for relaxation, and a progressive foundational series.</li><li>4. Teach a regular class at Hull University Students' Union and have covered classes at Allam Sport Centre.</li></ol>
MAY 2021	<p><b>Guest Lecturer, UNIVERSITY OF SHEFFIELD, the UK</b></p> <p>Proposed the addition of an introductory lecture on partial differential equations to Modelling and Simulation of Natural Systems. Independently designed and delivered the lecture to around 100 undergraduate and master's students.</p>
SEP 2014 FEB 2017	<p><b>Demonstrator, UNIVERSITY OF SOUTHAMPTON, the UK</b> <i>Design and Computing</i></p> <ol style="list-style-type: none"><li>1. Tutored around 450 first-year undergraduate students in Python programming and basic numerical methods in computer lab sessions.</li><li>2. Provided continuous feedback to around 100 first-year undergraduate students who designed and built launchers in two weeks.</li></ol> <p><i>Thermofluids</i></p> <ol style="list-style-type: none"><li>1. Two-semester introductory course in thermodynamics and fluid mechanics for around 500 first-year undergraduate students.</li><li>2. Demonstrated four experiments about drag forces, ideal gas properties, thermodynamic cycles, and hydrostatic forces.</li><li>3. Marked and provided feedback on problem sheets and lab reports.</li></ol>
SEP 2012 DEC 2013	<p><b>Teaching Assistant, COLUMBIA UNIVERSITY, the USA</b> <i>Analysis of Chemical Engineering Problems I</i></p> <ol style="list-style-type: none"><li>1. Python-based course about numerical methods for 60 chemical engineering juniors.</li><li>2. Held office hours and tutored the students in computer lab sessions. Prepared code for assignment solutions and graded assignments.</li></ol> <p><i>Chemical Engineering Laboratory</i></p> <p>Demonstrated how to separate ammonia from air in a packed bed absorption column to 31 chemical engineering seniors.</p> <p><i>Transport Phenomena I</i></p> <p>Theoretical course about momentum and energy transport for 60 chemical engineering juniors. Held office hours, recitations, revision lectures, and graded assignments.</p>

## ADVOCACY EXPERIENCE

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JAN 2023 NOW	<b>EDI Champion, UNIVERSITY OF HULL, the UK</b> <ol style="list-style-type: none"><li>1. Represent my department at the faculty level and help develop the faculty's equality, diversity, and inclusion (EDI) plan.</li><li>2. Offer practical EDI advice and raise awareness of EDI issues and activities. Signposted after the anti-immigration protests and riots in 2024. Convened a focus group to gather feedback on the staff portal in 2024.</li><li>3. Incorporated the stories of eight minoritised innovators into Numerical Methods for Engineering. Created video content for International Women's Day 2025.</li><li>4. Spoke at internal conferences, gave departmental seminars, and led induction sessions on linguistic justice, languaging in diverse communities, microaggressions, neurodiversity, and inclusive education.</li></ol>
JAN 2023 NOW	<b>Mentor, IMPERIAL COLLEGE LONDON, the UK</b> <ol style="list-style-type: none"><li>1. Imperial College Careers Service's Alumni Mentoring Scheme. The scheme supports the development of student employability and encourages the networking propensity of students from underrepresented groups.</li><li>2. Activate Student Mentoring Programme. Established as a part of Imperial College London's 2021 Race Equality Charter Action Plan to support recipients of master's scholarships for disabled students and presidential scholarships for students of black heritage, as well as minority ethnic and disabled PhD students.</li><li>3. In March 2025, I was on an autistic graduate careers panel, sharing my experiences, challenges, and coping strategies with Imperial students.</li></ol>
OCT 2020 SEP 2022	<b>EDI Committee Member, UNIVERSITY OF SHEFFIELD, the UK</b> <ol style="list-style-type: none"><li>1. Researcher representative on the Department of Computer Science's EDI Committee.</li><li>2. Represented the department in the Faculty of Engineering's working group on race.</li><li>3. Contributed to discussions in EDI working groups and an anti-racism reading group.</li><li>4. Invited Siena Castellon, an internationally recognised neurodiversity advocate, to give a Women+@DCS seminar in January 2021.</li><li>5. Helped organise the biennial departmental EDI survey in May 2021 and a summer project to design an inclusive undergraduate curriculum in 2021.</li><li>6. Department renewed its Athena SWAN Silver Award for five years in September 2021.</li></ol>

## OTHER EXPERIENCE

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JAN 2018 NOW	<b>Reviewer</b> <ol style="list-style-type: none"><li>1. Uni. of Nebraska-Lincoln. Selection committee of the Undergraduate Creative Activities and Research Experiences (UCARE) programme in 2018. Evaluation panel at the Institute for International Teaching Assistants in 2018.</li><li>2. Uni. of Hull. Hull York Medical School's faculty selection panel in 2023 and Faculty of Science and Engineering's Ethics Committee in 2024 and 2025.</li><li>3. Reviewed original research articles for the <i>Journal of Applied Physiology</i>, <i>IEEE Transactions on Biomedical Engineering</i>, <i>Systems Research and Behavioral Science</i>, <i>IEEE Access</i>, and <i>PLOS Computational Biology</i>.</li><li>4. I have served as a grant reviewer for the National Institute for Health and Care Research (NIHR) and Medical Research Council (MRC).</li></ol>
NOV 2020 FEB 2023	<b>Alumni Representative Committee Member, COLUMBIA UNI., the USA</b> <p>Interviewed 24 undergraduate applicants from different ethnic, socioeconomic, and academic backgrounds.</p>
JAN 2017	<b>Faculty Tour Guide, UNIVERSITY OF SOUTHAMPTON, the UK</b> <p>Led guided tours of the engineering buildings for incoming students and visitors.</p>
AUG 2008 SEP 2008	<b>Office Clerk, K.C. HO AND FONG SOLICITORS AND NOTARIES, Hong Kong</b> <ol style="list-style-type: none"><li>1. Translation of legal documents from Standard Chinese to English.</li><li>2. Essential office tasks such as photocopying, scanning, and printing documents.</li></ol>
MAY 2008	<b>Catering Assistant, SEVENOAKS SCHOOL, the UK</b> <ol style="list-style-type: none"><li>1. Not impressed with what I had experienced and witnessed at this registered charity, I joined the catering department to make a statement about educational injustice.</li><li>2. Served food and cleaned the dining hall after meals.</li></ol>
JUL 2007 AUG 2007	<b>Laboratory Technician, CHINESE UNIVERSITY OF HONG KONG, HK</b> <p><i>Supervisors: Prof. Henry N.C. Wong and Dr. Sam C.K. Hau</i></p> <p>Assisted in labour-intensive and hands-on tasks related to organic synthesis.</p>
SEP 2006 JUN 2007	<b>Gardener, SEVENOAKS SCHOOL, the UK</b> <p>I maintained and redesigned gardens on campus.</p>

## ACADEMIC PAPERS

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1. Khan, G., **Wertheim, K.Y.**, Pimblet, K., and Ahmed, W., 2026. SARS: A Novel Face and Body Shape and Appearance Aware 3D Reconstruction System Extends Morphable Models. *arXiv*.
2. Italia, M., Parker, M., Deignan, R., Dercole, F., Walker, D., and **Wertheim, K.Y.**, 2025. A Novel Prognostic Metric Resolves the MYCN Enigma *in Silico* and Points to a Biosynthetic Regulatory Shift Driven by MYCN Amplification in Neuroblastoma. *bioRxiv*.
3. Akindele, O.K., Mishra, B.K., and **Wertheim, K.Y.**, 2025. A Knowledge Graph and a Tripartite Evaluation Framework Make Retrieval-Augmented Generation Scalable and Transparent. *arXiv*.
4. Lohani, A., Mishra, B.K., **Wertheim, K.Y.**, and Fagbola, T.M., 2025. Step-by-Step Approach to Design Image Classifiers in AI: An Exemplary Application of the CNN Architecture for Breast Cancer Diagnosis. *medRxiv*.
5. **Wertheim, K.Y.**, Chisholm, R., Richmond, P., and Walker, D., 2024. Multicellular Model of Neuroblastoma Proposes Unconventional Therapy Based on Multiple Roles of p53. *PLoS Computational Biology*, 20(12):e1012648.
6. Khan, G., Pimblet, K., **Wertheim, K.Y.**, and Ahmed, W., 2024. A Single Shot Multi-Head Gender, Age, and Landmarks Detection Using Shared Convolution Features. *2024 29th International Conference on Automation and Computing (ICAC)*. Sunderland, the United Kingdom, 28–30 August. IEEE, pp. 1–6.
7. Borau, C., **Wertheim, K.Y.**, Hervás-Raluy, S., Sainz-DeMena, D., Walker, D., Chisholm, R., Richmond, P., Varella, V., Viceconti, M., Montero, A., Gregori-Puigjané, E., Mestres, J., Kasztelnik, M., and Garcia-Aznar, J.M., 2023. A Multiscale Orchestrated Computational Framework to Reveal Emergent Phenomena in Neuroblastoma. *Computer Methods and Programs in Biomedicine*, 241, p.107742.
8. Italia, M., **Wertheim, K.Y.**, Taschner-Mandl, S., Walker, D., and Dercole, F., 2023. Mathematical Model of Clonal Evolution Proposes a Personalised Multi-Modal Therapy for High-Risk Neuroblastoma. *Cancers*, 15(7):1986.
9. de Melo Quintela, B., Hervás-Raluy, S., Garcia-Aznar, J.M., Walker, D., **Wertheim, K.Y.**, and Viceconti, M., 2022. A Theoretical Analysis of the Scale Separation in a Model to Predict Solid Tumour Growth. *Journal of Theoretical Biology*, 547, p.111173.
10. **Wertheim, K.Y.**, Puniya, B.L., La Fleur, A., Shah, A.R., Barberis, M., and Helikar, T., 2021. A Multi-Approach and Multi-Scale Platform to Model CD4+ T Cells Responding to Infections. *PLoS Computational Biology*, 17(8):e1009209.
11. Martí-Bonmatí, L., Alberich-Bayarri, Á., Ladenstein, R., Blanquer, I., Segrelles, J.D., and 29 others, including **Wertheim, K.Y.**, 2020. PRIMAGE Project: Predictive *in Silico* Multiscale Analytics to Support Childhood Cancer Personalised Evaluation Empowered by Imaging Biomarkers. *European Radiology Experimental*, 4(1):22.
12. **Wertheim, K.Y.** and Roose, T., 2019. Can VEGFC Form Turing Patterns in the Zebrafish Embryo? *Bulletin of Mathematical Biology*, 81(4):1201–1237.
13. **Wertheim, K.Y.** and Roose, T., 2017. A Mathematical Model of Lymphangiogenesis in a Zebrafish Embryo. *Bulletin of Mathematical Biology*, 79(4):693–737.
14. **Wong, K.Y.**, Mercader, A.G., Saavedra, L.M., Honarparvar, B., Romanelli, G.P., and Duchowicz, P.R., 2014. QSAR Analysis on Tacrine-Related Acetylcholinesterase Inhibitors. *Journal of Biomedical Science*, 21(1):84.
15. Roohani-Esfahani, S.I., **Wong, K.Y.**, Lu, Z., Chen, Y.J., Li, J.J., Gronthos, S., Menicianin, D., Shi, J., Dunstan, C., and Zreiqat, H., 2014. Fabrication of a Novel Triphasic and Bioactive Ceramic and Evaluation of its *in Vitro* and *in Vivo* Cytocompatibility and Osteogenesis. *Journal of Materials Chemistry B*, 2(13):1866–1878.
16. **Wong, K.Y.**, Duchowicz, P.R., Mercader, A.G., and Castro, E.A., 2012. QSAR Applications During Last Decade on Inhibitors of Acetylcholinesterase in Alzheimer's Disease. *Mini Reviews in Medicinal Chemistry*, 12(10):936–946.

## INVITED TALKS

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1. **Wertheim, K.Y.**, 2024. How to Reveal Neuroblastoma's Emergent Properties at Different Biological Scales. The Operational Research Society's Systems Thinking Meeting. University of Hull, the UK. 10/04/2024.
2. **Wertheim, K.Y.**, Chisholm, R., Richmond, P., and Walker, D., 2022. A GPU-Accelerated Model of Neuroblastoma to Predict Disease Outcome and Find Drug Targets. Life Science Open Space 2022. Krakow, Poland. 21/11/2022.
3. **Wertheim, K.Y.**, Chisholm, R., Richmond, P., and Walker, D., 2021. The First Multi-Cellular Model of Neuroblastoma. Mathematical Modelling in Biomedicine. Peoples' Friendship University of Russia, Russia. 26/10/2021.
4. **Wertheim, K.Y.**, 2020. Emergent Behaviours Demonstrated by Immune System and Neuroblastoma. Department of Oncology, University of Oxford, the UK. 20/03/2020.
5. **Wertheim, K.Y.**, 2020. Emergence of Good and Evil in Biological Systems. Bioengineering Seminar Series. University of Southampton, the UK. 13/03/2020.

## CONTRIBUTED TALKS

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1. Khan, G., Pimblet, K., **Wertheim, K.Y.**, and Ahmed, W., 2024. A Single Shot Multi-Head Gender, Age, and Landmarks Detection Using Shared Convolution Features. 2024 29th International Conference on Automation and Computing (ICAC), the UK: Sunderland.
2. Italia, M., **Wertheim, K.Y.**, Taschner-Mandl, S., Walker, D., and Dercole, F., 2022. Model-based Optimisation Reveals Evolutionary Dynamics Conducive to Effective Therapy for Neuroblastoma. VPH2022, Portugal: University of Porto.
3. **Wertheim, K.Y.**, Chisholm, R., Richmond, P., and Walker, D., 2022. A GPU-Accelerated Model of Neuroblastoma to Predict Disease Outcome and Find Drug Targets. VPH2022, Portugal: University of Porto.
4. de Melo Quintela, B., Hervás-Raluy, S., Garcia-Aznar, J.M., Walker, D., **Wertheim, K.Y.**, and Viceconti, M., 2021. A Scale Separation Approach Applied to a Mathematical Model of Solid Tumour Growth. CompBioMed Conference 2021, internet.
5. **Wertheim, K.Y.**, Chisholm, R., Richmond, P., and Walker, D., 2021. The First Multi-Cellular Model of Neuroblastoma (ID: 174). BioMedEng21, the UK: University of Sheffield.
6. **Wertheim, K.**, Puniya, B.L., La Fleur, A., Shah, A.R., Barberis, M., and Helikar, T., 2018. Towards a Virtual Immune System: Multi-Scale Modeling of CD4+ T Lymphocytes. 26th Conference on Intelligent Systems for Molecular Biology, the USA: Chicago.
7. **Wong, K.Y.** and Roose, T., 2016. Mathematical Modelling of Lymphatic System Development. European Conference on Mathematical and Theoretical Biology 2016, the UK: Nottingham University.
8. **Wong, K.Y.** and Roose, T., 2015. Lymphatic System Development in Zebrafish: a Reaction-Diffusion-Convection Model (ID: 186). British Applied Mathematics Colloquium 2015, the UK: Cambridge University.
9. Mathew, S., **Wong, K.Y.**, and Ortiz, V., 2013. Effects of DNA Methylation on DNA-Histone Interactions and Nucleosome Positions (ID: 342904). AIChE Annual Meeting 2013, the USA: San Francisco.

## POSTERS

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1. Covell, F., Taschner-Mandl, S., Patel, M., and **Wertheim, K.Y.**, 2025. Phenotypic Plasticity in Neuroblastoma: Implications for Evolutionary and Targeted Therapy (ID: P18). UK Mathematical Biology Conference, the UK: Birmingham.
2. Italia, M., **Wertheim, K.Y.**, Taschner-Mandl, S., Walker, D., and Dercole, F., 2022. Model-based Optimisation Reveals Evolutionary Dynamics Conducive to Effective Therapy for Neuroblastoma (ID: 168). 12th European Conference on Mathematical and Theoretical Biology, Germany: Heidelberg.
3. **Wertheim, K.**, Puniya, B.L., La Fleur, A., Shah, A.R., Barberis, M., and Helikar, T., 2018. Towards a Virtual Immune System: Multi-Scale Modeling of CD4+ T Lymphocytes (ID: A-217). 26th Conference on Intelligent Systems for Molecular Biology, the USA: Chicago.
4. Roohani-Esfahani, S.I., **Wong, K.Y.**, Lu, Z., Li, J.J., and Zreiqat, H., 2012. Magnesium Silicate Scaffolds: a New Candidate Biomaterial for Bone Regeneration (ID: 3072). 9th World Biomaterials Congress, China.
5. Roohani-Esfahani, S.I., **Wong, K.Y.**, Lu, Z., Li, J.J., and Zreiqat, H., 2012. Introducing Magnesium Silicate Based Scaffolds. International Forum of Biomedical Materials: Nanobiomaterials for Tissue Regeneration, China: Zhejiang University.

## PUBLIC ENGAGEMENT EVENTS

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1. **Wertheim, K.Y.**, 2023. Interviewed by Carla Greene. *Carla Greene on BBC Radio Humberside*. BBC Radio Humberside. 07/11/2023.
2. **Wertheim, K.Y.**, 2022. Computational Model of Neuroblastoma Shows that the Life Sciences are as Quantitative as Physics. Science Seminar Series. Tapton School, the UK. 07/03/2022.

## ADVOCACY EVENTS

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1. **Wertheim, K.Y.**, 2025. Ivory Towers are too Loud, Smelly, and Neurotypical. University of Hull, the UK. 03/12/2025.
2. **Wertheim, K.Y.**, 2024. Linguaging as Equals in an Unequal Classroom. University of Hull, the UK. 17/06/2024.
3. **Wertheim, K.Y.**, 2024. Linguaging as Equals in an Unequal World. University of Hull, the UK. 10/06/2024.
4. **Wertheim, K.Y.**, 2024. Gegenpressing against Microaggressions in Higher Education. University of Hull, the UK. 23/02/2024.
5. **Wertheim, K.Y.**, 2023. Will AI Bring Linguistic Justice? Sustainable Development Goals Conference: Just Transitions for Sustainable Development. University of Hull, the UK. 11/07/2023.
6. **Wertheim, K.Y.**, 2023. The Use of English as a Global Language in a Complex World. Business Briefing: Responsible Leadership in a Complex World. Hull University Business School, the UK. 07/06/2023.

## FELLOWSHIPS, SCHOLARSHIPS, AND GRANTS

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NOV 2025	Novel Human <i>in Vitro</i> Models of Complex Disease (grant), Medical Research Council (~£3m)
AUG 2023	DAIM studentship, University of Hull (~£93,336)
MAY 2022	Sheffield Undergraduate Research Experience Scheme Bursary, University of Sheffield (£1,250)
MAY 2020	Engineering Researcher Society Development Opportunity Fund, University of Sheffield (£250)
2019–22	Insigneo Summer Research Grant, University of Sheffield (£7,700)
JUN 2018	Travel fellowship for the 26th Conference on Intelligent Systems for Molecular Biology (US\$ 750)
SEP 2017	Travel grant for the 2017 Whole-Cell Modelling Summer School (US\$ 1,000)
MAR 2015	Conference bursary for the British Applied Mathematics Colloquium 2015 (£115)
JAN 2014	EPSRC studentship, University of Southampton: tuition, a budget, and a stipend (~£56,984)
FEB 2012	Departmental scholarship, Columbia University: tuition, fees, and a stipend (~US\$ 74,905)
JUL 2011	Research bursary, IAESTE Argentina (~US\$ 2,100)
JUL 2010	Exchange year tuition fee waiver, Imperial College London (~£11,200)

## HONOURS AND AWARDS

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FEB 2024	Fellowship of the Higher Education Academy (FHEA), Advance HE
OCT 2022	Recognition as an outstanding postdoc, University of Sheffield
JUL 2022	Departmental Recognition Award, University of Sheffield (£125)
JUL 2020	International Intellectual Benefits to Society Award, Mensa Foundation
JUL 2018	Open U1600 Section Champion, 2018 Cornhusker State Games: Chess
2007–08	Gold certificate, UK Senior Mathematical Challenge
2006–08	Science faculty, GlaxoSmithKline science, and mathematics prizes, Sevenoaks School
2006–07	Commendation in a science essay competition, Peterhouse, Cambridge

## CERTIFICATES

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JUL 2025	AI AGENTS WITH LANGCHAIN AND LANGGRAPH, <b>Udacity</b>
JAN 2025	GENERATIVE AI NANODEGREE, <b>Udacity</b>
JAN 2025	DEEP REINFORCEMENT LEARNING: VALUE-BASED METHODS, <b>Udacity</b>
SEP 2024	COMMUNICATING WITH NATURAL LANGUAGE, <b>Udacity</b>
AUG 2024	ADVANCED COMPUTER VISION AND DEEP LEARNING, <b>Udacity</b>
JUL 2024	MENTAL HEALTH FIRST AIDER (MHFAIDER®), <b>MHFA England</b>
DEC 2023	INTRODUCTION TO COMPUTER VISION, <b>Udacity</b>
OCT 2023	BUILDING GENERATIVE ADVERSARIAL NETWORKS, <b>Udacity</b>
OCT 2023	200-HOUR YOGA TEACHER TRAINING, <b>Yoga Alliance Professionals (now Yoga Pros)</b> , the UK
AUG 2023	NATURAL LANGUAGE PROCESSING SPECIALISATION, <b>DeepLearning.AI</b> , the USA
SEP 2021	GENOMIC DATA SCIENCE SPECIALISATION, <b>Johns Hopkins University</b> , the USA
NOV 2018	MACHINE LEARNING ENGINEER NANODEGREE, <b>Udacity</b>
SEP 2017	WHOLE-CELL MODELLING, <b>Centre for Regulatory Genomics</b> , Spain

## TEST SCORES

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OCT 2022	Cattell Culture Fair III A Intelligence Test: 157 (percentile rank: 99)
OCT 2022	Cattell III B Intelligence Test: 154 (percentile rank: 98)
JAN 2019	Mensa Wonderlic: 32 (percentile rank: 95)
JAN 2019	RAIT Quantitative Intelligence Index: 148 (percentile rank: 99)
JAN 2019	RAIT Total Battery Intelligence Index: 472 (percentile rank: 98)

## AFFILIATIONS

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Member of Yoga Pros since 2023.  
Member of British Mensa since 2019.

## REFERENCES

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NAME: Prof. Tiina Roose	NAME: Prof. Tomas Helikar
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