Dr Kenneth Y. Wertheim

Personal Details

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Summary

I am a systems theorist with expertise in mathematical modelling, scientific computing, and machine learning. My major research interests lie in the broad field of systems biology, but I develop applications of artificial intelligence too. When I am not theorising, I advocate linguistic justice and teach yoga. Less seriously, I am a chess player and art lover.

Aracial, acultural, and agender, I am a global citizen without a home country, but I am currently based in Kingston upon Hull in the UK. My correct pronouns are they and them. I am also known as 11250205.

Major Skills

Modelling Frameworks
Ordinary differential equations, partial differential equations, Boolean networks, constraint-based modelling, agent-based modelling, cellular automata, and stochastic processes.

Scientific Computing
Finite element method, linear programming, dynamic programming, genetic algorithms, Monte Carlo methods, and multicellular simulation.

Artificial Intelligence and Data Science
Regression, classification, clustering, dimensionality reduction, association rule learning, deep learning, generative AI, natural language processing, computer vision, and hypothesis testing.

Computer Skills
Python, MATLAB, R, C++, LaTeX, COMSOL, Git, Linux, and high-performance computing.

Languages
English (5/5), Cantonese (4/5), Mandarin (3/5), Toki Pona (3/5), and German (2/5).

Selected Achievements to Date

• Published ten peer-reviewed articles in immunology, oncology, developmental biology, cancer biology, medicinal chemistry, and tissue engineering.

• Built the first multicellular 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.

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

• Awarded over 120k GBP by various institutions to fund my education and research on five continents.

Research and Development Experience

Jan 2023 Now	**Principal Investigator**, University of Hull, the UK *Systems Biology Projects* 1. Established collaborations with Dr Sabine Taschner-Mandl from St. Anna Children's Cancer Research Institute in Austria, Dr Giordano Pula from Hull York Medical School, and Dr Matishalin Patel from my department. 2. Conceived a project about evolutionary therapy for high-risk neuroblastoma. Supervising a PhD candidate (Francesca Covell). 3. Studied platelet proteomes with bioinformatic and machine learning methods. *Artificial Intelligence and Data Science Projects* 1. Proposed and/or supervised 26 MSc dissertation projects, including collaborative projects with the NHS. 2. Healthcare, sport science, fintech, optical character recognition, natural language processing, image captioning, dysarthric speech recognition, multimodal sentiment analysis, and optimisation. 3. Co-supervising a PhD candidate (Gulraiz Khan) researching real-time 3D reconstruction from 2D human images.
Feb 2019 Jan 2023	**Project Supervisor**, University of Sheffield, the UK 1. Conceived an independent research programme comprising three projects. 2. Awarded four Insigneo research grants and the Engineering Researcher Society Development Opportunity Fund. 3. 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. 4. 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). 5. Used ordinary differential equations to model neuroblastoma's clonal evolution during chemotherapy. Optimised induction chemotherapy with a genetic algorithm enhanced by gradient descent. 6. Used ordinary differential equations to model MYCN's interactions with the ARF/MDM2/p53 axis. Global sensitivity analysis and association rule learning with the Apriori algorithm. 7. Used probabilistic Boolean networks to study neural crest development at the intracellular level. Found attractors and ergodic sets using Tarjan's strongly connected components algorithm.
Feb 2019 Jan 2023	**Computational Oncologist**, University of Sheffield, the UK *Supervisor: Dr. Dawn Walker* 1. Predictive in Silico Multiscale Analytics to Support Cancer Personalised Diagnosis and Prognosis, Empowered by Imaging Biomarkers (PRIMAGE). 2. 10 million–euro Horizon 2020 project involving 16 institutions from eight European countries. The aim is to deliver a cloud-based decision-making platform for the clinical management of malignant solid tumours. *Neuroblastoma* 1. Built the first multicellular model of neuroblastoma by combining a continuous automaton, autonomous agents, and a centre-based mechanical model. Developed a calibration pipeline based on Latin hypercube sampling and experimental/clinical data. 2. Simulated progression of heterogeneous tumours and performed *in silico* clinical trials of targeted therapies on the GPUs on the Bessemer high-performance computing cluster. 3. Analysed the datasets by dimensionality reduction, clustering, and hypothesis testing. Proposed an unconventional therapy based on targeting p53's regulators. 4. Built surrogate models by multiple linear regression and deep learning. 5. Collaborated with the University of Zaragoza, University of Bologna, and Chemotargets SL to integrate the model with their organ-scale and single-cell models with a new scale separation approach. *Diffuse Intrinsic Pontine Glioma* 1. Secured a bursary from the Sheffield Undergraduate Research Experience scheme. 2. Co-supervised an undergraduate student (Will Shaw) who reviewed the literature. 3. Supervised an undergraduate student (Luke Jones) who modelled DIPG's clonal evolution and invasive spread in a biological lattice-gas cellular automaton.

MAR 2017 JAN 2019	**Computational Biologist**, UNI. OF NEBRASKA–LINCOLN, the USA *Supervisor: Prof. Tomas Helikar* 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. 2. Wrote an algorithm to implement the model, combining a Monte Carlo method, the Kolmogorov-Smirnov test, linear programming, and a finite difference method. Predicted switch-like and oscillatory behaviours for CD4+ T cells from computer simulation results. 3. Added more agent types to the model, including neutrophils, macrophages, dendritic cells, basophils, and CD8+ T lymphocytes. 4. Supervised two PhD candidates (Aimee Kessell and Sydney Townsend) and three undergraduate students (Alyssa La Fleur, Robert Moore, and Bailee Lichter).
MAR 2018 NOV 2018	**Machine Learning Engineer**, UDACITY 1. Took courses in supervised, unsupervised, deep, and reinforcement learning. Udacity's Machine Learning Engineer Nanodegree. 2. Designed and implemented a series of studies using a dataset from a pan-cancer analysis of paediatric cancers. 3. Built histotype classifiers and trained them with the dataset comprising activities of mutational signatures, including a decision tree, a naive Bayes classifier, support vector machines, an ensemble method (Adaboost), and a multilayer perceptron. 4. Quantified the intra-histotype variations in the dataset by hierarchical clustering. 5. Extracted latent features from the dataset by principal component analysis.
FEB 2014 FEB 2017	**PhD Candidate**, UNIVERSITY OF SOUTHAMPTON, the UK *Supervisor: Prof. Tiina Roose* 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). 2. Simplified the model to four equations and wrote an algorithm to sample the parametric space to perform Turing pattern analysis. 3. Proposed a theory about the chemical basis of lymphangiogenesis.
SEP 2012 DEC 2013	**Graduate Research Assistant**, COLUMBIA UNIVERSITY, the USA *Molecular Simulation of Nucleosomes* *Supervisor: Dr. Vanessa Ortiz* Helped a senior colleague study the effects of DNA methylation on nucleosome formation through MD simulations and alchemical FEP calculations in NAMD. Analysed data by TCL scripting. *Image and Quantitative Analysis of SNARE-Mediated Membrane Fusion* *Supervisors: Prof. Ben O'Shaughnessy and Dr. Ben Stratton* Used Speckle TrackerJ (ImageJ plugin) to analyse TIRFM images of SNARE-mediated membrane fusion in a microfluidic setup.
OCT 2011 DEC 2011	**MEng Student**, IMPERIAL COLLEGE LONDON, the UK *Supervisor: Prof. Cleo Kontoravdi* Used ordinary differential equations to model the unfolded protein response. Ran gPROMS-aided computer simulations of the progression of Alzheimer's disease.
JUL 2011 SEP 2011	**IAESTE Intern**, UNIVERSIDAD NACIONAL DE LA PLATA, Argentina *Supervisors: Prof. Eduardo Castro, Prof. Pablo Duchowicz, and Dr. Andrew Mercader* Built 10 QSAR models by multiple linear regression to predict the activities of tacrine-related acetylcholinesterase inhibitors in the treatment of Alzheimer's disease.
NOV 2010 MAR 2011	**Intern**, UNIVERSITY OF SYDNEY, Australia *Supervisors: Prof. Hala Zreiqat and Dr. Iman Roohani* Prepared strontium-doped magnesium silicate scaffolds for bone tissue engineering and characterised them by X-ray diffraction.

TEACHING EXPERIENCE

JAN 2023 **NOW**	**Lecturer**, UNIVERSITY OF HULL, the UK *Degree Title: MSc Artificial Intelligence and Data Science* 1. This fast-track conversion course allows graduates from all academic backgrounds to launch a career in artificial intelligence and data science. 2. Teach the applied AI module. Linear regression, decision trees, Naive Bayes, k-means clustering, hierarchical clustering, principal component analysis, feedforward neural networks, convolutional neural networks, autoencoders, recurrent neural networks, attention models, computer vision, and natural language processing. 3. Gave guest lectures about cancer modelling in the module titled Research and Application in AI and Data Science. 4. Support my personal supervisees in their personal, academic, and professional development.
MAY 2021	**Guest Lecturer**, UNIVERSITY OF SHEFFIELD, the UK *Course Title: Modelling and Simulation of Natural Systems* *Module Lead Instructors: Dr Aditya Gilra and Dr Dawn Walker* 1. Around 100 undergraduate and master's students in the class. 2. Proposed the addition of an introductory lecture on partial differential equations to the module leaders. 3. Independently designed and delivered the lecture, covering the definition and classification of partial differential equations, as well as a survey of the analytic, numerical, and qualitative methods for them.
SEP 2014 **FEB 2017**	**Demonstrator**, UNIVERSITY OF SOUTHAMPTON, the UK *Course Title: Design and Computing* *Course Coordinator: Dr. Alexander Forrester* 1. Programming in Python and basic numerical methods: I tutored around 450 first-year undergraduate students in computer lab sessions. 2. Intensive design project: I provided continuous feedback to around 100 first-year undergraduate students who designed and built launchers in two weeks. *Course Title: Thermofluids* *Course Coordinator: Prof. John S. Shrimpton* 1. A two-semester introductory course in thermodynamics and fluid mechanics for up to 500+ first-year undergraduate students in each academic year. 2. Demonstrated four experiments about the drag forces on objects falling in glycerol, ideal gas properties, the thermodynamic cycle of a heat engine, and hydrostatic forces. 3. Marked and provided feedback on problem sheets and lab reports.
SEP 2012 **DEC 2013**	**Teaching Assistant**, COLUMBIA UNIVERSITY, the USA *Course Title: Analysis of Chemical Engineering Problems I* *Course Leader: Dr. Vanessa Ortiz* 1. Python-based numerical method course for 60 chemical engineering majors (junior). 2. Tutored the students in computer lab sessions and held office hours. 3. Prepared code for assignment solutions and graded assignments. *Course Title: Chemical Engineering Laboratory* *Course Leader: Prof. Jingyue Ju* 1. Laboratory class for 31 chemical engineering majors (senior). 2. Demonstrated how to separate ammonia from air in a packed bed absorption column. *Course Title: Transport Phenomena I* *Course Leader: Adjunct Prof. Michael Hill* 1. Momentum and energy transport course for 60 chemical engineering majors (junior). 2. Taught revision lectures; held office hours and recitations; and graded assignments.

Other Experience

Nov 2023 **Now**	**Yoga Teacher**, Yoga Pona 1. Set up a yoga business and branded it with its own name and logo. 2. Designed and built a website. Prepared other promotional materials. 3. Planned and taught *vinyasa* yoga classes.
Jan 2023 **Now**	**EDI Champion**, University of Hull, the UK 1. Represent the department at the faculty level and help develop the faculty's equality, diversity, and inclusion (EDI) plan. 2. Raise awareness of EDI issues and activities in the department. Offer practical EDI advice as required. 3. Gave talks about linguistic justice at two internal conferences in 2023. 4. Prepared and delivered a departmental seminar about microaggressions in 2024.
Jan 2023 **Now**	**Mentor**, Imperial College London, the UK I specialise in mentoring students interested in the quantitative life sciences; Black, Asian, and Minority Ethnic (BAME) students; international students; first-generation immigrants; victims of linguistic oppression; and neurodivergents. *Imperial College Careers Service's Alumni Mentoring Scheme* 1. The scheme supports the development of student employability and encourages the networking propensity of students from underrepresented groups. 2. Students and mentors work together across the academic year with a minimum of five points of engagement. *Activate Student Mentoring Programme* 1. This cross-departmental mentoring scheme was established as a part of Imperial College London's 2021 Race Equality Charter Action Plan. 2. It aims to support PhD students of BAME heritage and Presidential Scholars at the undergraduate and master's levels in their academic and professional development. Students and mentors meet six times across the academic year.
Jan 2018 **Now**	**Reviewer** 1. Uni. of Nebraska–Lincoln. Between January and March 2018, I served on the selection committee of the Undergraduate Creative Activities and Research Experiences (UCARE) programme, reviewing project proposals. 2. Uni. of Nebraska–Lincoln. In August 2018, I was invited by the Institute for International Teaching Assistants to serve on an evaluation panel. I rated the teaching, language, and comprehension skills of prospective teaching assistants. 3. Uni. of Hull. In October 2023, I served on a selection panel when the Hull York Medical School was recruiting a new faculty member. 4. I have reviewed original research articles for the *Journal of Applied Physiology* and *IEEE Transactions on Biomedical Engineering*.
Nov 2020 **Feb 2023**	**Alumni Representative Committee Member**, Columbia Uni., the USA I interviewed 24 undergraduate applicants over three application cycles.
Oct 2020 **Sep 2022**	**EDI Committee Member**, University of Sheffield, the UK 1. Researcher representative on the Department of Computer Science's Equality, Diversity, and Inclusion (EDI) Committee. 2. Represented the department in the Faculty of Engineering's working group on race. 3. Contributed to discussions in working groups focusing on gender issues; cultural competence; and wellbeing, neurodiversity, and accessibility. Parts of our discussions were used to design an action plan, which helped the department renew its Athena SWAN Silver Award for five years in September 2021. 4. Helped set up a project to make our undergraduate curriculum more inclusive in summer 2021, leading to a Google site suggesting practical interventions. 5. Expanded the scope of the Women+@DCS seminar series to address neurodiversity and systemic racism. Invited Siena Castellon, an internationally recognised neurodiversity advocate, to give a talk in January 2021. 6. Helped organise the biennial departmental EDI survey in May 2021. 7. Contributed to an anti-racism reading group to scour the literature for ideas for dismantling systemic racism in computer science.
Jan 2017	**Faculty Tour Guide**, University of Southampton, the UK Led guided tours of the engineering buildings for incoming students and visitors.

AUG 2008 SEP 2008	**Office Clerk**, K.C. HO AND FONG SOLICITORS AND NOTARIES, Hong Kong 1. Translation of legal documents from Standard Chinese to English. 2. Essential office tasks such as photocopying, scanning, and printing documents.
MAY 2008	**Catering Assistant**, SEVENOAKS SCHOOL, the UK 1. Not impressed by what I had experienced and witnessed at this registered charity, I joined the catering department to make a statement about educational injustice. 2. Served food and cleaned the dining hall after meals.
JUL 2007 AUG 2007	**Laboratory Technician**, CHINESE UNIVERSITY OF HONG KONG, HK *Supervisors: Prof. Henry N.C. Wong and Dr. Sam C.K. Hau* Assisted in labour-intensive and hands-on tasks related to organic synthesis.
SEP 2006 JUN 2007	**Gardener**, SEVENOAKS SCHOOL, the UK I made over gardens on campus.

EDUCATION

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

CERTIFICATES

DEC 2023	INTRODUCTION TO COMPUTER VISION, **Udacity**
OCT 2023	BUILDING GENERATIVE ADVERSARIAL NETWORKS, **Udacity**
OCT 2023	200-HOUR YOGA TEACHER TRAINING, **Yoga Alliance Professionals**, the UK
AUG 2023	NATURAL LANGUAGE PROCESSING SPECIALISATION, **DeepLearning.AI**, the USA
SEP 2021	GENOMIC DATA SCIENCE SPECIALISATION, **Johns Hopkins University**, the USA
NOV 2018	MACHINE LEARNING ENGINEER NANODEGREE, **Udacity**
SEP 2017	WHOLE-CELL MODELLING, **Centre for Regulatory Genomics**, Spain

TEST SCORES

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)

HONOURS AND AWARDS

FEB 2024	Fellowship of 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)
MAY 2022	Sheffield Undergraduate Research Experience Scheme Bursary, University of Sheffield (£1,250)
JUL 2020	International Intellectual Benefits to Society Award, Mensa Foundation
MAY 2020	Engineering Researcher Society Development Opportunity Fund, University of Sheffield (£250)
2019–22	Insigneo Summer Research Grant, University of Sheffield (£7,700)
JUL 2018	Open U1600 Section Champion, 2018 Cornhusker State Games: Chess
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)

Honours and Awards (Continued)

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)
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

Affiliations

Member of Yoga Alliance Professionals since 2023.

Member of British Mensa since 2019.

Member of Society for Mathematical Biology since 2017.

Journal Articles

1. 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.

2. 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.

3. 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.

4. **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.

5. 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.

6. **Wertheim, K.Y.** and Roose, T., 2019. Can VEGFC Form Turing Patterns in the Zebrafish Embryo? *Bulletin of Mathematical Biology*, 81(4):1201–1237.

7. **Wertheim, K.Y.** and Roose, T., 2017. A Mathematical Model of Lymphangiogenesis in a Zebrafish Embryo. *Bulletin of Mathematical Biology*, 79(4):693–737.

8. **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.

9. Roohani-Esfahani, S.I., **Wong, K.Y.**, Lu, Z., Chen, Y.J., Li, J.J., Gronthos, S., Menicanin, 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.

10. **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

1. **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.

2. **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.

3. **Wertheim, K.Y.**, 2020. Emergent Behaviours Demonstrated by Immune System and Neuroblastoma. Department of Oncology, University of Oxford, the UK. 20/03/2020.

4. **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

1. 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.

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. VPH2022, Portugal: University of Porto.

3. 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.

4. **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.

5. **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.

6. **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.

7. **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.

8. 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

1. 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.

2. **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.

3. 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.

4. 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

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

1. **Wertheim, K.Y.**, 2024. Gegenpressing against Microaggressions in Higher Education. University of Hull, the UK. 23/02/2024.

2. **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.

3. **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.

References

Name:	Prof. Tiina Roose	Name:	Prof. Tomas Helikar
Institution:	University of Southampton	Institution:	University of Nebraska–Lincoln
Email:	t.roose@soton.ac.uk	Email:	thelikar2@unl.edu
Name:	Dr. Dawn Walker	Name:	Dr. Kevin Pimbblet
Institution:	University of Sheffield	Institution:	University of Hull
Email:	d.c.walker@sheffield.ac.uk	Email:	K.Pimbblet@hull.ac.uk