EMERIT. PROF JARMILA GLASSEY

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APPOINTMENTS

2015 – Jan 2025	Professor, School of Engineering, Newcastle University
2012 - 2015	Reader, CEAM, Newcastle University
2005 - 2012	Senior Lecturer, CEAM, Newcastle University
1994 – 2005	Lecturer, Dept. of Chemical & Process Eng. / CEAM, Uni. of Newcastle
1992 – 1994	Senior RA, DTI LINK project, SK Beecham, Uni. of Newcastle
1991 – 1992	Senior RA, SERC project, ZENECA Pharmaceuticals, Uni. of Newcastle

QUALIFICATIONS

2010	Chartered Engineer, Institution of Chemical Engineers, UK
1995	PhD in biochemical engineering awarded by University of Newcastle
1990	First class Honours degree in Chem. Eng.(MEng equivalent) STU, The Faculty of Chemical Technology, Bratislava, Slovakia
1989	First class BEd Hons in education, STU, Bratislava, Slovakia

ESTEEM & ACHIEVEMENTS

National and international recognition of my contribution to (bio)chemical engineering and bioprocess modelling, monitoring data & analysis research as well as chemical engineering education is evident from the following:

- Elected President of the European Federation of Chemical Engineering (EFCE) from Jan 2026
- Elected Executive Vice President of EFCE (2022 and 2024) and Vice President of the European Society for Biochemical Engineering Sciences (ESBES) (2012-2025)
- Elected a Fellow of Royal Academy of Engineering (2021)
- Awarded IChemE Trustee Medal for a volunteer who has given exceptional service to an IChemE project (2021)
- Elected Vice President Technical of IChemE (2018-2021) and a Trustee (Academic liaison responsibility since 2014-2021)
- Elected Executive Vice President of the European Society for Biochemical Engineering Sciences (ESBES, 2012)
- Elected a Fellow of Institution of Chemical Engineers (2010)
- IChemE Global Awards winner in Process Automation and Digitalisation category from a very competitive shortlist of international big business leaders (Aramco Americas, US, ExxonMobil, UK, Petroliam Nasional Berhad (PETRONAS), Malaysia, Saudi Aramco Process & Control Systems Department, Saudi Arabia, Worley Group, US), 2023
- Chair of Education Section (from 2025), Chair of Monitoring, measuring, modelling and control of bioprocesses (M^3C) Section of the ESBES (2010-2016), then vice-chair to 2018.

- Chair of Conference ESBES 2016, Dublin, member of the Steering and/or Scientific Committees of ECCE/ECAB conferences since 2015 to date, and EBES conferences since 2012 to date
- Expert evaluator of various other EU proposal schemes since 2011
- Invitations to present plenary and keynote presentations (e.g. WCCE 2025 Beijing, IBIC 2024 Bologna, ECCE/ECAB 2023 Berlin, CHISA 2022 Prague, BioProScale 2022 Berlin, E2DT 2022 Milan) and chair sessions at national and international bioprocessing symposia and conferences.
- Invited to chair the International Selection Panel for the French B-BEST programme (part of the national acceleration strategy 'Bio-based products, industrial biotechnologies - Sustainable fuels') prioritising best quality multi-million Eur large project proposals for this highly prestigious funding scheme (2024 then also 2025)
- Elected Chair of International Advisory Board, UCT, Prague, Czechia, 2022
- Invitation to Chair an International Evaluation Panel to review the research impact of Bernal Institute at University of Limerick, Ireland, 2021
- Invitation to Chair an International Evaluation Panel (set up by the Ministry of Education of Czechia) to review the research impact of University of Chemical Technology, Prague, 2020
- Co-author of two books and 11 chapters in bioprocess modelling and chemical engineering education books
- Author of over 80 refereed discipline research journal publications and over 140 peer-reviewed conference publications (additional pedagogical publications stated below).
- Appointed Editor of J Appl. Microbiology and Letters Appl. Microbiology, Chemical Papers regularly reviewing manuscripts for around 10 other research journals as well as reviewing grant applications for EPSRC and international funding bodies (e.g. Dutch, Danish, Singaporean and Chilean).
- Regularly acting as an external examiner for PhD theses internationally (e.g. Ireland, Egypt, India, Denmark, Austria, Germany, Belgium) and nationally (e.g. UCL, Manchester, Birmingham, Surrey).
- Coordinator of a Biorapid ITN consortium (>4 M Eur) in rapid bioprocess development (2015-2018)
- As a member of the Biopharmaceutical Bioprocess Technology Centre established at Newcastle University, I contributed to the successful award of a £20M Engineering doctorate scheme.
- Secured a number of Research Council sponsored projects that I was a principal investigator or co-investigator in – over £350k over the last seven years.
- Secured a number of additional EU/industrially/government sponsored research projects that generated in excess of £5M over the last ten years.
- Successfully supervised and co-supervised over 50 PhD students and 70 master students as well as 5 visiting researchers.

TEACHING RELEVANT

- Director of Education, School of Engineering, Newcastle University (2022-2025) with overall responsibility for quality of education delivery of all undergraduate and MSc degrees (~4-5000 students, 500 staff, multi-million GBP annual expenditure).
- Invited panellist in the virtual quad-Academies 'Design and delivery of large engineering projects: an ideas forum' organised by the U.S. National Academy of Engineering, U.K. Royal Academy of Engineering, Canadian Academy of Engineering, and the Australian Academy of Technological Sciences and Engineering.
- Awarded Frank Morton Medal awarded to the 'game changer' individual who has best demonstrated excellence in chemical engineering education (2021)
- Awarded Principal Fellow of HEA recognition (2014)

- National Teaching Fellow (2013) – first chemical engineer in the UK to be awarded this recognition
- ExxonMobil Excellence in Teaching Award (2010) and Teaching Fellowship (1998) recognising contribution to chemical engineering education.
- Vice Chancellor's Distinguished Teacher Award 2010
- Appointed Chair of the RAEng Engineering X Engineering Skills where they are Most Needed (ESMN) Board, now Skills for Safety (2022), member since 2021
- Appointed a member of the strategic working group for Engineers 2030 RAEng project aimed at shaping the engineering profession through 2030 and beyond (https://nepc.raeng.org.uk/engineers-2030)
- Appointed Advisory Board member for the RAEng review of the current state of teaching and learning in UK engineering higher education (2022)
- Appointed Advisory Board member of the RAEng/Engineering Professors Council (EPC) Engineering Ethics group (2022)
- Secretary of Working Party on Education of the European Federation of Chemical Engineering (2010 – 2016), full member of WPE and UK representative since then
- Chair of IChemE Education Special Interest Group (2012 – 2018),vice-chair until 2019.
- Executive Officer of the IChemE Education and Accreditation Forum with responsibility for pedagogical research, chair of Virtual Accreditation Panels
- Securing EU pedagogical funding (750 kEUR) for virtual reality based chemical engineering education (2018-2022) and coordinating iTeach project to develop an assessment framework for chemical engineering education evaluation (0.5 M Eur, 2013-2016)
- In addition, successfully securing over £150 K pedagogical innovation and research funding over the last five years from national funders.
- Authoring a book chapter on teaching sustainability as well as over 30 publications on my pedagogical research
- Appointed Editor in Chief of the Education for Chemical Engineering journal (2015) achieving a first impact factor of 2.33 in 2021 and a top three engineering education position. The next IF jumped to 3.2 in 2022 and we moved to second position in engineering education.
- Invited plenary speaker and external expert panel member on education matters (e.g. WCCE 2023 Buenos Aires, Shell Global Excellence conference, 2022, IChemE Centenary panel on future of CE education, 2022, etc.)
- Invited plenary speaker and Advisory Committee member of Spanish Association of Chemical Engineering Studies Education in Chemical Engineering meeting, Santander, Jan 2018
- Invited international expert for a panel of Engineering education symposium of Chinese educators, Tianjin, Dec 2017
- Invited keynote presenter at the World Engineering Education Forum, Kuala Lumpur, Nov 2017
- Invited international expert member of the Review of the Dept. of Chemical and Material Eng., U. of Auckland, New Zealand, 2017
- Invited keynote presenter at the ICOSSE symposium on sustainability teaching at the WCCE Barcelona, Oct 2018

- Invited as an Advisory Council member for curriculum review Master in Chemical Engineering (MIEQ), at the Faculty of Engineering - University of Porto (FEUP), 2016
- Invited by NVO to evaluate proposed BEng course on Circular Engineering at Maastricht University, 2020
- Invited by A3ES as external panel member for the accreditation of applied biochemistry degrees at Nova Lisboa University (2021)
- Chair/member of scientific and organising committees of educational conferences worldwide – e.g. CIDIQ2022 Madrid (2022)
- Invited keynote presentation at ISEE, Sheffield, 2016, AIChE Process Development Symposium, 2021
- Invited pedagogical presentations at KU Leuven (2016), University of Edinburgh (2016), U West Indies (2016), UCC (2018), IIT Bombay (2021), WPE webinars (2021, 2022).
- Invited to deliver workshops on capstone and design project teaching – Universities in Vietnam (Ho Chi Minh City, Da Nang, Hanoi), 2014
- Invited to organise and chair Education sessions at the ChemEngDay UK conferences since 2014
- HEA Academic associate preparing Engineering lens on UK Professional Standards Framework, published 2015
- Regularly invited as external expert for Subject Quality Reviews for Chemical engineering degrees (U. Bath, Herriot Watt U., U. Chester)
- External examiner for chemical engineering degrees (U. Cambridge, UCL, U. Manchester, U Surrey, Aston U., Cork Institute of Technology, U West Indies, U West of Scotland)
- Leading and participating in IChemE accreditation panels (U. Pannonia, Hungary, U. Oxford, U. West Indies, U. Hull, Imperial College, Surrey, Aberdeen)
- Mentoring various Universities on accreditation and curriculum development issues (U. of Twente, NL, U. Cambridge, U. Loughborough, U. Sheffield-Hallam, U. Southampton)

RESEARCH EXPERTISE

My research career as a biochemical engineer focused on delivering high-quality research at the interface of academia and industrial impact. My research outputs in the areas of bioprocess development, modelling, monitoring and control, Quality by design (QbD) and Process Analytical Technologies (PAT) have made significant contributions to R&D in the biopharmaceuticals, specialty chemicals and food & drink sectors both within and outside the UK.

My research approach is based on the fundamental understanding and monitoring of the biological processes using post genomic methodologies and combining it with engineering principles of scale-up and process intensification. Most recently my group is investigating the use of these methodologies in monoclonal antibody manufacture, cell gene therapy, viral production and ADC production. Specifically, my main interests stem from the area of advanced monitoring and control of processes and, over the years, I have developed and disseminated novel control strategies for the optimisation of recombinant protein production by integrating the physiological and engineering approaches.

These approaches include machine learning, artificial intelligence and multivariate data analysis methods, successfully combined with first-principle models to increase the predictive power of the resulting models. We used these models for the optimisation of the whole process, accounting for important interaction between individual unit operations, so often disregarded. The agent-based technology allowed us to make this process very efficient both in time and resources required and hence a direct

applicability to industry is straightforward. This is particularly important in the current climate of driving for rapid development of viral production processes and more effective biotherapeutic manufacturing.

SELECTED PUBLICATIONS

Google Scholar (Jul 2025) h-index 30, i-index 65

Recent books/Chapters:

Udeozor, C., Russo Abegão, F. and Glassey, J: Exploring log data for behaviour and solution pattern analyses in a serious game, in Gamification and Social Networks in Education, eds. 2021

Karlberg, M., Kizhedath, A. and Glassey J.: Model-based risk assessment of mAb developability, in Optimization of pharmaceutical processes, eds. Ramachandran, R., Pardalos, P. Fytopoulos, A., Springer Nature, 2021

Glassey J. Efficiency of teaching core knowledge and employability competencies in chemical engineering education, in The Interdisciplinary Future of Engineering Education: Breaking Through Boundaries in Teaching and Learning, Kapranos, P (ed), Taylor Francis, 2018

Glassey J., von Stoch, M: Hybrid modelling in process industries, CRC Press, 2018

Glassey J., Barone A., Montague G.A., Sabou V.: Case Studies in Modelling Control in Food Processes, in Hitzmann B (ed) Measurement, Modeling and Automation in Advanced Food Processing, *Adv. Biochem. Eng. Biotechnol*, in press 2017

Glassey J: Multivariate modelling for bioreactor monitoring and control, in Mandenius CF (ed) Bioreactors: Design, Operation and Novel Applications, Wiley-VCH, London, 2016

Selected refereed journal publications:

Ravi, M., Russell-Sewell, N., Hoadley, A., Glassey, J. Sustainability - the core of responsible engineering practice and education: reality or still just utopia? A comparative study between China and the Rest of the World, ECE, 51, 43-52, 2025

Ramos, RCPdS., de Oliveira, N.S., Bianchini, L.F., Azevedo-Alanis, L.R., Pimentel, I.C., Hardy, A.M.T.G., Murata, R.M., Glassey, J., Ribeiro Rosa, E.A. Cunninghamella echinulata DSM1905 biofilm-based L-asparaginase production in pneumatically-driven bioreactors. PLoS ONE 19(9), e0308847, 2024

Garcia Fracaro, S., Tehreem, Y., Toyoda, R., Gallagher, T., Glassey, J., Bernaerts, K., Wilk, M. Benefits and impact of emergency training in a VR environment, ECE , 48, 63-72, 2024

Kumar Singh, V., Jiménez Del Val, J., Glassey, J., Kavousi, F. Integration approaches to model bioreactor hydrodynamics and cellular kinetics for advancing bioprocess optimisation, Bioengineering, 11(6), 546, 2024

Martins-Ribeiro, A., Kizhedath, A., Ahmed, S.S., Glassey, J., Ishaq, A., Freer, M., Dickinson, A.M. A human skin explant test as a novel in vitro assay for the detection of skin sensitisation to aggregated monoclonal antibodies, Toxics, 2024

Rivas, D.F., Cintas, P., Glassey, J., Boffito, D.C. Ultrasound and sonochemistry enhance education outcomes: From fundamentals and applied research to entrepreneurial potential, Ultrasonics Sonochemistry, 106795, 2024

Mohamed, MKE, Montague, G., Glassey, J., Morrow, P., Ryan, V., Dawson, S. Industrial implementation of an inline near infrared process control system for the production of caramel, J Food Engng, 361, 2024, https://doi.org/10.1016/j.jfoodeng.2023.111717

Victor, TMM., Glassey, J., Kamps, K., Ward, AC. Antibiotic Production Through Solid-State Fermentation Under a Novel Fixed-Bed Micro-Reactor, Am. J Chem. Engng, 11(4), 64-74, 2023

Jiang, Y., Byrne, E., Glassey, J., Chen, X. Reduced-order modeling of solid-liquid mixing in a stirred tank using data-driven singular value decomposition, ChERD, 196, 40-51, 2023

Udeozor, C., Russo-Abegão, F., Glassey, J. Perceptions and factors affecting the adoption of digital games for engineering education: a mixed-method research, Int. J Ed. Tech. HE 20 (1), 1-20, 2023

Udeozor, C., Russo-Abegão, F., Glassey, J. Measuring learning in digital games: Applying a game-based assessment framework, British J Ed. Tech., 2023

Udugama, I.A., Atkins, M., Bayer, C., Carson, J., Dikicioglu, D., Gernaey, K.V., Glassey, J., Taylor, M., Young, B.R. Tools in chemical engineering education: The needs and the desires, Ed. Chem. Eng. 44, 63-70, 2023

Udeozor, C., Chan, P., Russo Abegão, F., Glassey, J. Game-based assessment framework for virtual reality, augmented reality and digital game-based learning, Int J Educ Technol High Educ, https://doi.org/10.1186/s41239-023-00405-6, 2023

Bolton, L, Glassey, J., Ventura-Medina, E. Updating Chemical Engineering Degree Accreditation in Changing Times, ECE, 43, 31-36, 2023

Meyer, Th., Schaer, E., Abildskov, J., Feise, H., Glassey, J., Liauw, M., Ó'Súilleabháin, C., Wilk, M. The importance/role of education in chemical engineering, CheRD, https://doi.org/10.1016/j.cherd.2022.08.061, 2022

Toyoda, R., Russo Abegão F., Glassey J.: VR-based health and safety training in various high-risk engineering industries: a literature review, Int J Educ Technol High Educ, 19:42, https://doi.org/10.1186/s41239-022-00349-3, 2022

Udeozor, C., Toyoda, R., Russo Abegão, F., Glassey.: Digital Games in Engineering Education: Systematic Review and Future Trends, *European J Eng Education*, DOI: 10.1080/03043797.2022.2093168, 2022

Fornos, S, Udeozor, C, Glassey J, Cermak-Sassenrath D.: The CHEM Jam - how to integrate a game creation event in curriculum-based engineering education, ECE, 40, 8-16, 2022

Bull, S., Glassey, J., Ward, A.C. Synthesis and Characterisation of Proteins Profile of "Streptomyces coelicolor" A3 (2) Cultured Within an Inert Solid-State matRix and Submerged Fermentation, Am. J. Chem. Biochem. Engng. 6 (2), 51-67, 2022

Emerson, J., Glassey, J.: Bioprocess monitoring and control: challenges in cell and gene therapy, *Current Opinion in Chem Engg*, 34, 100722, https://doi.org/10.1016/j.coche.2021.100722, 2021

Toyoda R., Russo Abegão F., Gill S., Glassey J.: Drivers of immersive virtual reality adoption intention: a multi-group analysis in chemical industry settings, Virtual Reality, https://doi.org/10.1007/s10055-021-00586-3, 2021

Udeozor C., Toyoda R., Russo Abegão F., Glassey J.: Perceptions of the Use of Virtual Reality Games for Chemical Engineering Education and Professional Training, *Higher Education Pedagogies*, 10.1080/23752696.2021.1951615, 2021

Garcia Fracaro, S., Chan, P., Gallagher, T., Tehreem, Y., Toyoda, R., Bernaerts, K., Glassey, J., Pfeiffer, T., Slof, B., Wachsmuth, S., Wilk, M.: Towards design guidelines for virtual reality training for the chemical industry. Educ. Chem. Eng. 36, 12–23. https://doi.org/10.1016/j.ece.2021.01.014, 2021.

Bianchini, L.F., da Silva Ramos, R.CP., de Oliveira, N.S., de Paula, R.C., Rosa, R.T., Glassey, J. Rosa, E. AR: Drug biotransformation process favored by fungal biofilms formed on a proposed fixed bed-airlift hybrid reactor, J Chem Tech Biotech, https://doi.org/10.1002/jctb.6610, 2020

Karlberg, M., de Souza, J.V., Fan, L., Kizhedath, A., Bronowska, A.K., Glassey, J: QSAR Implementation for HIC Retention Time Prediction of mAbs Using Fab Structure: A Comparison between Structural Representations, IJMS, 21(21), https://doi.org/10.3390/ijms21218037, 2020

Goldrick, A., Sandner, V., Cheeks, M., Turner, R., Farid, S.S., McCreath, G., Glassey, J.: Multivariate data analysis methodology to solve data challenges related to scale-up model validation and missing data on a micro-bioreactor system, J Biotech, 15, 2020

Emerson, J., Kara, B. Glassey, J: Multivariate data analysis in cell gene therapy manufacturing, Biotech Adv., 10.1016/j.biotechadv.2020.107637, 2020

Glassey, J and Magalhaes, F.D.: Virtual labs – love them or hate them, they are likely to be used more in the future, ECE, https://doi.org/10.1016/j.ece.2020.07.005, 2020

Fernandez Rivas, D., Boffito, D.C., Faria-Albanese, J., Glassey, J., Afraz, N., Akse, H., Boodhoo, K.V.K.B., Bos, R., Cantin, J., Chiang, Y.W., Commenge, J.M., Dubois, J.L., Galli, F., Gueneau de Mussy, J.P., Harmsen, J., Kalra, S., Keil, F., Morales-Menendez, R., Navarro-Brull, F.J., Noël, T., Ogden, K., Patience, J.S., Reay, D., Santos, R.M., Smith-Schoettker, A., Stankiewicz, A.I., van den Berg, H., van Gerven, T., van Gestel, J., van der Stelt, M., van de Ven, M., Weber, R.S.: Process intensification education contributes to sustainable development goals. Part 1, ECE, 32, 1-14, 2020

Fernandez Rivas, D., Boffito, D.C., Faria-Albanese, J., Glassey, J., Afraz, N., Akse, H., Boodhoo, K.V.K.B., Bos, R., Cantin, J., Chiang, Y.W., Commenge, J.M., Dubois, J.L., Galli, F., Gueneau de Mussy, J.P., Harmsen, J., Kalra, S., Keil, F., Morales-Menendez, R., Navarro-Brull, F.J., Noël, T., Ogden, K., Patience, J.S., Reay, D., Santos, R.M., Smith-Schoettker, A., Stankiewicz, A.I., van den Berg, H., van Gerven, T., van Gestel, J., van der Stelt, M., van de Ven, M., Weber, R.S.: Process intensification education contributes to sustainable development goals. Part 2, ECE, 32, 15-24, 2020

Barone, A., Glassey, J., Montague, G: Towards online Near-Infrared spectroscopy to optimise food product mixing, J Food Eng., doi.org/10.1016/j.jfoodeng.2019.07.003, 2019

Miguel, C.V., Moreira, C., Alves, M., Campos, J., Glassey, J., Schaer, E., Kockmann, N., Porjazoska Kujundziski,A., Polakovic, M., Madeira, L.: Developing a framework for assessing the teaching effectiveness in higher education, ECE 29, 21-28, 2019

Guerra, A., von Stosch, M., Glassey, J: Toward biotherapeutic product real-time quality monitoring, Crit Rev Biotech, https://doi.org/10.1080/07388551.2018.152436, 2019

Sandner, V., Pybus, L.P., McCreath, G., Glassey, J: Scale-Down Model Development in ambr™ systems: An Industrial Perspective, Biotech. J., 14(4), e1700766. doi: 10.1002/biot.201700766, 2019

Kizhedath, A., Wilkinson, S., Glassey, J: Assessment of hepatotoxicity and dermal toxicity of butyl paraben and methyl paraben using HepG2 and HDFn in vitro models, Toxicology in vitro, doi.org/10.1016/j.tiv.2018.12.007, 2018

Ribeiro Rosa, E.A., Glassey, J.: Novel bioactive molecule production in innovative microbial biotransformation system based on submerged biofilms, *J Chem Tech Biotech*, J Chem Tech Biotech, 94(4), 1323-1329, DOI: 10.1002/jctb.5890, 2018

Kizhedath A., Wilkinson S., Glassey J. Applicability of traditional in vitro toxicity tests for assessing adverse effects of monoclonal antibodies: A case study of Rituximab and Trastuzumab, *Antibodies*, 7, 30, doi:10.3390/antib7030030, 2018

Guerra, A., Glassey J., Machine Learning in Biopharmaceutical Manufacturing, EPR, 4, Sep 2018

Karlberg J.M.A., von Stosch M., Glassey J.: Exploiting mAb structure characteristics for a directed QbD implementation in process development, Crit Rev Biotech, 38, 957-970, 10.1080/07388551.2017.1421899, 2018