Curriculum Vitae

Personal

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Research interests

Applying customised modelling / algorithms, data analysis, computer vision, machine learning and visualisation. Interactivity with interest in social and educational aspects. Specific interest in the use of machine learning tools and techniques for solving real world problems, for the full project life cycle from initial data exploration through to modelling, testing and application.

Education

2007 – **2012** *Brunel University (UK) – Bioengineering – Advanced modelling and visualisation*

- (Part time) Degree: Doctor of Philosophy (PhD)

1998 – **2000** *Fontys University (Netherlands)* – Computer science

- (Accelerated course) Degree: First degree / Bachelor

1994 – **1998** *Fontys University (Netherlands)* – Applied physics

- Degree: First degree / Bachelor

Languages

English (fluent), Dutch (native), Spanish (fluent), German (conversational)

Computer skills

Platforms: Windows, Linux, Android, Raspberry PI, QNX (RTOS), Docker, Amazon AWS, High Performance Computing
Machine Learning: TensorFlow, Keras, Weka, NLTK, spaCy, GATE
Languages: C++, C#, Java, Python, R, Matlab, LabView, JavaScript (NodeJS), Cypher (Neo4j)

Additional courses

2017 Udacity (online) – Google Deep Learning (advanced class)
2016 University of York (UK), CHE – Regression Methods for Health Economic Evaluation
2014 Brunel University (UK) – Graduate Learning and Teaching Programme (GLTP)
2014 Brunel University (UK) – Academic Practice: Influence and Impact for Researchers
2013 / 2014 Brunel University (UK) – Professional Development in Academic Practice (PDAP)
2005 IEEE / French-Mexican Laboratory in Computer Science (Mexico) – Image and Robotics
2004 Metropolitan Autonomous University (Mexico) – Pattern Recognition

Key journal publications

- **De Folter, J.**, Trusheim, M., Jonsson, P., Garner, P. (2018) *Decision-components of NICE Technology Appraisals Assessment Framework,* Int J Technol Assess Health Care 34, 2
- Clarke, M., **de Folter, J.**, Verma, V., Gokalp, H. (2017) *Interoperable End-to-End Remote Patient Monitoring Platform based on IEEE 11073 PHD and ZigBee Health Care Profile*, IEEE BME 65, 5
- **De Folter, J.**, Gokalp, H., Fursse, J., Sharma, U., Clarke, M. (2014) *Designing effective visualizations of habits data to aid clinical decision making*, BMC Med. Inform. Decis. Mak. 14, 102
- **De Folter, J.**, Cribbin, T. (2012) *Facilitating insight into a simulation model using visualization and dynamic model previews*, J. Vis. Lang. & Comp. 23, 6

Full list of publications at Google Scholar profile: https://scholar.google.com/citations?user=AggHQrMAAAAJ

Main work experience

2019 – **Current** *The Francis Crick Institute (UK)* – Scientific Computing Software Developer

Providing solutions for AI/machine learning projects, including establishing collaborations with research teams and time estimation:

- Providing an improved pipeline for image tracking of species, from raw image format to scientific data points
- Collaborating on developing a fully automated workflow including deep learning (CNN/U-Net) and aggregation of crowd sourced data for detection of biological cell features in Electron Microscopy images, including packaging for Amazon AWS

2018 – **Current** *The Francis Crick Institute (UK)* – Lead Research Engineer / Heron CTO

Leading development of AI Start-up (CTO):

- Heron: Building the '*map of science*': Developing an online tool for exploring, finding and analysing scientific literature in an open and visual way
- Establishing development team and project managing software development
- Employ machine learning, natural language processing (NLP, Spacy), Graph Models (neo4j) & visual data analytics

2015 – **2018** *National Institute for Health and Care Excellence (NICE) (UK)* – Operational Researcher

Leading research & development of novel methodology at NICE:

- Decision making factor analysis, using various text mining / natural language / ML methods
- Tools to aid appraisal committee decision making
- Visualisation of decision outcomes and processes
- Qualitative & quantitative User Centred Design research
- Multi-disciplinary simulation modelling (IMI GetReal)
- Establishing and leading collaborations across different teams
- Various external research collaborations including MIT - CBI (Center for Biomedical Innovation)

2014 – **2015** *Computer Science at Brunel University (UK)* – Research Fellow

Research on modelling software fault prediction:

- Creating ensemble prediction models
- Applying Machine Learning techniques

2012 – **Current** *Imperial college (UK) / Leuven University (Belgium) / Francis Crick Institute (UK)*

Independent research collaboration on modelling (see http://joostdefolter.info/ant-research)

- Multi agent analysis & modelling including pattern recognition
- Image analysis and tracking using OpenCV / CUDA for real-time processing

2010 – **2014** *Brunel Research Into Good Health Technology (UK)* – Research Fellow

Collaborating in multi-disciplinary teams as part of European projects: Hydra, inCASA, Reaction (funded by TSB / FP7):

- Embedded software managing (Zigbee) wireless device communication
- Standards implementation (HL7, ISO/IEEE 11073, 11073-20601, Continua Health Alliance)
- Data processing & analysis of motion / pressure sensors for behaviour detection
- Applying data visualisation techniques based on clinicians' feedback

2007 – **2010** *Brunel Institute for Bioengineering (UK)* – Lab technician / PhD student

Maintaining and supplying labs and computer systems, and conducting research on modelling and visualisation of liquid-liquid separations:

- Developing model algorithms and advanced UI with visualisation and interactivity including 3D graphics
- Developing computer model using chromatography distribution, diffusion theory and particle simulation, to be able to accurately estimate results of hypothetical experiments
- Developing a scientific computer game based on chromatography theory; featured at scientific public engagement

2003 – **2007** *Innovamedica / Vitalmex (Mexico)* – Head of software development

Research and development in medical equipment as head of software development:

- Project planning / management, organising resources, operating in a multi-disciplinary team
- Responsible for recruitment of department staff
- Development, testing and implementation of software for safety-critical medical prototypes
- Compliance with safety standards and risk assessments
- Development for embedded Real-Time Operating System (RTOS) (QNX) and Windows
- Developing user interface and complete control software for a Ventricular Assist Device
- Developing software for a Gastric Tissular Impedance Spectrometer
- Designing reliable communications protocols
- Create impedance analysis model and classification algorithms using Neural Networks