CURRICULUM VITAE

Dr Graham Webb

BEng(hons) MSc PhD PGDipIPEM

PERSONAL DETAILS

A creative medical engineer with a diverse combination of academic, commercial and life experience, I have an ability to apply strong analytical skills to complex problems. A diplomatic nature allows me to effectively manage teams and relate to a wide range of people. I wish to develop a career in medical engineering and focus my skills towards helping people enjoy an improved quality of life.

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Date of Birth:	18th October 1975
Nationality:	British

EDUCATION

2008 - 2013	**PhD** "Real-time electro-tactile biofeedback for amputee gait re-training" University of Surrey, Sponsored by the EPSRC and Queen Mary's Hospital (London)
2005 - 2007	**Postgraduate Diploma** in Clinical Science, Institute of Physics and Engineering in Medicine
2005 - 2007	**MSc** (with merit) in Biomedical Engineering, University of Surrey
1998 - 2002	**BEng (Hons.) 1st Class** in Robotics and Automated Systems, University of Plymouth
1997 - 1998	**Foundation Engineering degree** (with distinction), University of Plymouth
1995	NVQ Levels 2 & 3 in Business Administration and Engineering Manufacture Buckinghamshire College of Higher Education
1992 - 1994	British Chambers of Commerce Basic Engineering Training Certificate
1992 - 1994	3 City and Guilds (with distinction) in Computer Aided Engineering, Mechanical, Production and General Engineering, Buckinghamshire College of Higher Education
1988 - 1992	5 GCSEs at grades A-C including maths, science and technology, Grange Secondary School, Aylesbury

EMPLOYMENT

2013 - date	**Research Fellow**, Centre for Biomedical Engineering, University of Surrey
Autumn 2012	**Clinical Research and Development Engineer**, Chas A Blatchford & Sons Ltd.
2008 - 2013	**PhD Researcher**, University of Surrey
2005 - 2008	**Trainee Clinical Scientist**, St. George's Hospital NHS Trust and Queen Mary's Hospital
2004 - 2005	**Science Technician**, St. Boniface's RC Boys School and Lipson Community College
2004	**Clerical Officer and Hospital Porter**, Plymouth Hospitals NHS Trust
2002 - 2004	**Staff Training Co-ordinator**, HM Young Offenders Institution Portland
2000 - 2001	**Research Engineer**, Defence Evaluation Research Agency
1995	**Engineering Storeman**, F.G. Metcalfe & Son Ltd
1995	**Production Progress Chaser**, Masterfil Ltd
1992 - 1994	**Mechanical Engineering Apprentice,** Molins Tobacco Machinery Ltd

AWARDS and FUNDING

2008	University of Surrey, EPSRC Case Studentship April 2008 – September 2011 Amount £50900 (Tuition and 42-month stipend)
2002	The Tektronix UK Prize for Project Engineering
2002	Honorary Life Membership of the University of Plymouth Students Union
2000	Certificate with distinction for industrial and professional experience during a placement that opened up a new business area for the Defence Evaluation Research Agency (now QinetiQ)

SKILLS SUMMARY – CLINCAL

Major hospital-based training placements, in three areas:

Biomechanical Evaluation and Function in the Douglas Bader Rehabilitation Centre, Queen Mary's Hospital (London)

- Assessing gait and functional capacity of adult and paediatric patients with upper and lower limb motor impairments, notably amputees and neurological patients (stroke, MS, children with CP).
- Using and developing a range of assessment techniques, including: Camera-based motion capture (Qualysis and Vicon), force plates, dynamometry and plantar pressure (Tekscan), EMG (Delsys), measures of energy expenditure (such as VO2, HR) and activity monitoring. Simple temporal-spatial measurements, high speed video / vector and observational tools and Quality of Life questionnaires.
- Prescribing and assessing Functional Electrical Stimulation (FES) predominantly for patients with dropped foot.
- Conducting risk assessments, internal audits and literature reviews. Developing and testing rehabilitation equipment and outcome tools - this work developed into my PhD research.

Physiological Measurement at St George's Hospital (London)

- Training in the assessment of adult, paediatric and neonatal patients with a range of pathophysiologies, in Audiology, Lung Function and Neurophysiology.
- Using pure tone audiometry and tympanometry in adults and neonates. Project work to develop the auditory brainstem response test for the neonatal screening programme.
- Using spirometry, whole body plethysmography and single breath CO diffusion testing with adults and children with respiratory problems.
- Using EEG for seizure management; and nerve conduction testing (ENG and EMG) to assess nerve compression injuries.
- Minor placements in Urology, Ultrasound and Neonatal intensive care.

Medical Instrumentation at St George's Hospital NHS Trust, in collaboration with the Department of Surgery, St George's Hospital Medical School

- Developing a wireless power and data transmission system for a motorised femoral bone distractor implant, for patients with leg length discrepancies. Documenting the regulatory requirements.

During voluntary work as a medical imaging clerical officer and as a porter I worked within most of the in-patient departments at Derriford Hospital (Plymouth). Undertaking responsibilities in Endoscopy and A&E, and working closely with the management of Orthopaedic Outpatients, Radiology and the X-ray film store.

SKILLS SUMMARY – ENGINEERING AND SCIENTIFIC

Mechanical engineering skills developed from a toolmakers apprenticeship

- Turning, milling, grinding, jig boring, gear-cutting, fitting, sheet metal work, welding, Assembly, tool design, conventional and NC/CNC planning

Electronic design skills developed throughout career and as a hobby

- Analogue and digital circuit design - microcontroller systems design
- Surface mount techniques, multi-layer board layout, production and assembly

Software and programming skills developed throughout career

- Visual3D and Qualisys Track Manager (motion analysis packages)
- LabVIEW Basic and Intermediate Training with National Instruments
- Matlab (Simulink and Stateflow), Microsoft C, Qbasic and Ada
- PIC and Atmel assembling languages and high level compilers
- Proteus Virtual System Modelling, Electronics Workbench and ProDesktop (CAD packages)
- MathCad and Derive (mathematics packages)
- Windows, LINUX, DOS, Microsoft Office and Endnote

ADDITIONAL TRAINING and CPD

- Team-Teach Advanced Training in "Front Ground Recovery"
- Team-Teach Advanced Training in "Use of Objects as Weapons"
- Team-Teach Basic Training in "Positive Behaviour Management"
- Safeguarding vulnerable adults and children
- Hostage – 1st on the Scene (HM Prison Service)
- Enhanced Thinking Skills (HM Prison Service)
- Registered First Aider (British Red Cross)
- Abrasive Wheels Regulations 1970 Course
- VHF Radio Operator (with RAF)
- Glider Pilot Training (with RAF)
- Full European Passport and Driving License held since 1994

PERSONAL & RESEARCH INTERESTS

- Control and the physiological basis for human movement - using technology to augment feedback for people with mobility impairments
- Ethics, and the appropriate application of science in society
- Keen cyclist and bad gardener
- Former Chairman of the University of Plymouth Tai Chi Club
- Former Corporal in the Air Training Corps (1365 Sqn.)

LECTURING and TEACHING SUPPORT

2008-2011	Gait Analysis and Human Movement	Postgraduate(ENG237)
2011	Healthcare Practice and Physiological Measurement	Undergraduate year M
2011	Engineering Projects	Undergraduate year 2
2011	Medical Instrumentation	Undergraduate year 2
2010	Safety and Physiological Measurement	Postgraduate
2008	Control Engineering	Undergraduate years 1 and 2
2002-2007	Mathematics	Undergraduate private tuition
2004-2005	A-Level Physics	Ages 16 to 19 (sixth form)
2004-2005	GCSE Science, Biology, Physics	Ages 5 to 16 (key stages 1 to 4)
1990-1992	Principles of flight, air navigation, dress and discipline	Air Training Corps cadets aged 13-17

OUTREACH and PUBLIC ENGAGEMENT

2008 - 2013	Departmental public engagement	General public
2008 - 2010	Tutor for the Headstart Programme - Engineering Development Trust	Aged 16 to 17 years
2006	Facilitator for the Smallpeice Trust Residential Bioengineering Course - University of Southampton	Aged 15 to 17 years
2004 - 2005	Assistant presenter, Chemistry road show sponsored by the Royal Institution of Great Britain	General public

PROFESSIONAL ACTIVITIES

Current

Currently developing a portfolio for Chartered Engineer examination
Associate member Institute of Physics and Engineering in Medicine (IPEM) since 2008
Established the UK JISCMail Clinical Engineering forum, and administered since 2006
Member Institute of Electrical and Electronics Engineers (IEEE) since 2002
Member Institute of Engineering and Technology (IET) since 1999

Past
Member University of Surrey Research Ethics Committee
Member Faculty of Health and Medical Sciences Research Ethics Committee

Journals Reviewed
IMechE Journal of Sports Engineering and Technology
Journal of Applied Bionics and Biomechanics

PUBLICATIONS

Journal papers

Development of a real-time kinematic biofeedback system
WEBB, G.D., CIROVIC. S., GHOUSSAYNI, S., & EWINS, D.J.
Journal of NeuroEngineering and Rehabilitation (in draft)

Electro-tactile sensation thresholds on the thighs of amputees and non-amputees
WEBB, G.D., GHOUSSAYNI, S., CIROVIC. S., & EWINS, D.J.
Neuroscience and Biobehavioral Reviews (Submitted)

Conference papers

A biofeedback gait re-training system for trans-femoral amputees
WEBB, G.D.
Capability after limb loss: the challenges of measuring and mastering movement with an artificial limb conference. West Midlands Rehabilitation Centre, Birmingham, UK. 2013

Electro-tactile sensation thresholds for an amputee gait-retraining system
WEBB, G. D., CIROVIC. S., GHOUSSAYNI, S. & EWINS, D. J.
3rd Annual Conference of the International Functional Electrical Stimulation Society (UK and Ireland Chapter). University of Birmingham, UK. 2012

Electrotactile feedback for trans-femoral amputee gait re-education
WEBB, G. D., GHOUSSAYNI, S. & EWINS, D. J.
1st Annual Conference of the International Functional Electrical Stimulation Society (UK and Ireland Chapter). University of Salford, UK. 2010

Providing Real-time Biofeedback for Amputee Gait re-training
WEBB, G. D. *NI Days Worldwide Graphical Systems Design Conference , London.* 2009

Reports

Helping Amputees to Walk Naturally
WEBB, G.D. *EPSRC Pathways to Impact Case Study* 2011