

Education

- 2011 – present The University of Liverpool
PhD Regional variation and determination of Ocular Biomechanical Properties in-vivo
Application of structural analysis tools in a project to measure the biomechanical properties of ocular tissue.
The programme uses traditional structural engineering analysis tools (experimental testing and numerical simulation) to develop new contact and non-contact technology to estimate the mechanical stiffness, hysteresis and viscoelasticity of the human cornea in-vivo. Knowledge of these properties is expected to improve eye healthcare in a number of areas including measurement of internal eye pressure for glaucoma management, introduction of corneal implants in keratoconus, and planning of refractive surgery in myopia.
- 2005 – 2009 The University of Liverpool
MEng Civil & Structural Engineering (2:1)
The course is based on first principle philosophies and Eurocode guidelines.
Subjects include;
- Advanced prestressed concrete
 - Foundation engineering
 - Structural steel, timber and masonry
 - Design of marine structures
 - Advanced structural materials
 - Dissertation project - Inverse modification effects on structural dynamics
 - Dynamic systems
 - Advanced reinforced concrete
 - Transport infrastructure
 - Applied FEM
 - Reinforced concrete & structural steelwork
 - Design of a winter sports facility – steelwork
 - FEM
- 2005 CITB / Milton Keynes College **NVQ 2 Site Joinery**
- 1997 – 1999 Buckinghamshire Chilterns University **BA Interior Design** (1st year diploma)
- 1995 – 1997 Woodstock Interiors, Kirkcudbright **NVQ 3 Furniture Manufacturing and Assembly**
- 1990 – 1995 Kirkcudbright Academy, Kirkcudbright **4 Highers** Physics, Mathematics, Chemistry & Craft & design
8 Standard Grades Physics, Chemistry, Mathematics, Craft & design, Art & design, Computing, English, Geography

Awards

- 2009 **Corus Structural Steel Design (1st prize - University level)** - Project leader for a group award to design an indoor winter sports facility for the national Corus structural steel competition
- 2008 **ICE Civil Design Student Award (1st prize)** - Individual award for the student who shows the greatest aptitude in civil engineering design over the duration of the course
- 2008 **Mott MacDonald Student Design Award (1st prize)** - Project leader for a group award for the design of a timber footbridge over a 200m wide river

Employment History

- Feb 2010 – Mar 2011 The University of Liverpool – School of Engineering
Research Assistant
- Fracture Mechanics of Fibre Reinforced Cementitious Composites
 - Physical and analytical research
 - Developing size-independent models through the use of Fictitious Crack Models (FCM)
 - Developing MATLAB programs in order to utilize FCM and obtain the ultimate moment capacity of various section sizes and the respective theorized stress distribution
 - Liaising with partners facilitating the industrialization of previously academic materials
 - Researching best practice, designing and implementing test procedures
 - Preparing specimens for testing
 - Detailed logging and processing of test data
 - Literature reviews Reporting evidence of activities and achievements to industrial partners and internal colleagues through visual, audio and literary means
- June – Sept 2008 Mott MacDonald BNI – structural engineering consultancy
Undergraduate Structural Engineer

- &
June – Dec
2007 (part-
time Oct - Dec)
- Eurocode & British Standard design
 - Responsible to associate and regional directors
 - Calculate the feasibility and write study for proposed large scale alteration works to a 5 storey hotel and present findings to the architect
 - Carry out FEM analysis on a historic RC slab to a Hydro electric station
 - Structural detailing design, including flitch beam design to EC5 and concrete retaining wall designs for the U-534 museum on Birkenhead
 - Survey and undertake the structural analysis of a steel truss & lattice girder tram shed (90×70m in plan) dating c.1935 which had encountered severe structural degradation due to corrossions and accidental damage, analysis resulted in the recommendation of deconstruction
 - General structural calculations on a daily basis within larger projects
 - Work alongside civil, structural & geotechnical engineers and CAD technicians
 - Check calculation submissions for Conwy CC
 - Design a retro-fit parapet to an existing footbridge
 - Liaise with architects acting as clients

June 1995 –
Aug 2005

Various construction and manufacturing firms including a firm run and owned by myself and another for over 2 years.

Manager / Partner

(previously ***Project Manager***, previously ***Workshop Manager***, previously ***Bench Joiner***, previously ***Self employed/Sole trader***, previously ***Apprentice***)

- Business management
- Project management running multiple domestic and commercial contracts of up to £75K
- Subcontractor & fulltime employee management
- Responsibility to clients, site managers and site engineers
- Integration within large scale construction projects up to £4M
- Knowledge of many aspects of the construction industry
- Yearly accounts, quarterly VAT returns and Companies House returns
- Budgeting and forecasting. Cash-flow and profit control
- Setup workshop and offices
- Purchases
- Liaising with multiple companies in all areas of the company to ensure projects run on time and within budget. Liaise with clients and suppliers
- Site surveys
- Plan production to meet schedules
- 1st & 2nd fix site joinery. Bench joinery & cabinet making, including construction of windows, doors, staircases and furniture

Additional Achievements

- 2007 – 2009 Sponsored by Mott MacDonald through third and fourth year studies.
- 2008 – 2009 Treasurer for Liverpool Snowriders – the top club at UOL with nearly 200 members and a turnover c. £20K for the academic year.
- 2003 – 2004 Securing position of primary joinery contractor to Goldbeck Construction UK Ltd. (annual turnover c. £60M).
- 2002 Having a Shaker cabinet made by myself displayed at The Royal Show.
- 1999 Tutor in a woodwork workshop in a summer camp situated in Connecticut working through Camp America.

Memberships

ICE (from 2005), IStructE (from 2005), TRADA (from 2007) & Institute of Wood Science (from 2008)

Interests

Snowboarding, Cross-country & downhill mountain biking, Sea kayaking & Cooking.

Referees

On request