Nick Taylor

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Personal Profile

As a PhD-qualified professional engineer with 11 years' experience in industrial R&D, I specialise in developing physics-based and data-driven software tools to support engineering analyses. I am highly motivated by acquiring and applying skills that are required to solve challenging, business-orientated problems. My skill set includes proficiency in R and Python programming, software testing, machine learning and eliciting commercial requirements to inform software development activities. Currently, I am seeking a role which will enable me to apply my knowledge and experience to deliver business value through innovative data analysis techniques.

Employment History

Mar 2008 - Present Doosan Babcock Limited *Crawley, UK*
Senior Engineer, R&D

- Supervised a three-person software testing team for an in-house utility boiler design tool; responsible for overseeing the quality assurance process.
- Managed development plan for in-house boiler design tools; elicited user requirements and software requirements; led delivery of engineer training program for the tool users in the UK, India and South Korea.
- Applied linear programming in R to determine the optimal operation of commercial battery storage solutions participating in electricity grid balancing service markets with arbitrage.
- Developed a deep-learning based tool in Python for the automated classification of images of pipe weld defects recorded from Remote Visual Inspections (RVIs).
- Used ThingWorx, an Industrial Internet of Things (IIoTs) platform, to deliver real-time boiler performance analysis, diagnostics and actionable insights to plant operators via a web-based dashboard.
- Consulted as a data analysis expert during plant commissioning; used R to read, tidy and merge disparate datasets; developed R Shiny dashboards to provide insightful, interactive data visualisations; applied regression analysis to predict equipment performance.
- Developed a Natural Language Processing (NLP) application in R to rapidly summarise, compare and contrast the content of a corpus of large documents; the application was developed in R Shiny.
- Created a graph database using Neo4j to evaluate vendor software/consultancy offerings pertaining to Reliability, Availability and Maintenance (RAM); used to assess candidates for procuring products/services for the enhancement of in-house capability.
- STEM ambassador for 7+ years; regular judge for south east regional heats of the Big Bang Competition; various activities with local schools promoting STEM careers.

Professional Skills

- **Programming Languages**: R, Python.
- **Web App Development**: Shiny, flask.
- **Web**: HTML, CSS, JavaScript, jQuery.
- **Databases**: SQL, Cypher, Neo4j.
- **OS**: Linux.
- **Source Control**: Git, GitHub.
- **Documentation**: (R)Markdown, Jupyter, LaTeX.
- **Internet of Things**: ThingWorx.

Education

Oct 2003 - Oct 2007 Imperial College of Science, Technology and Medicine *London, UK*
PhD in Mechanical Engineering

- Thesis title: "*An experimental study of the development and growth rate of shortwave instabilities on a vortex dipole*".
- Publication: "Characterising shortwave instabilities on a vortex dipole", *Experiments in Fluids*.
- Designed and supervised the manufacturing of a laboratory rig to facilitate the simulation of vortex systems.
- Developed a novel computational algorithm in Scilab to characterise experimental simulations of interacting vortex dipoles. The algorithms featured non-linear least squares fitting, image processing and signal processing methods.
- Acquired expertise in both the theory and application of the Particle Image Velocimetry (PIV) method for quantifying velocity fields.

Oct 1998 - Oct 2002 Imperial College of Science, Technology and Medicine *London, UK*
MEng Mechanical Engineering (2:1)

- Dissertation: "*An experimental study of wake vortices*".

Voluntary Work

Mar 2014 - Present Independent Monitoring Board, Tinsley House *Gatwick Airport, UK*
Board Member

- Monitoring that proper standards of care and decency are maintained for people subject to immigration detention.
- Handling a range of challenging issues, such as use of force, medical treatment queries and detainees subject to isolation, in an objective and analytical fashion.
- Communicating sensitively yet effectively with vulnerable detainees, centre staff, the senior management team and fellow board members.
- Building trust with people from a diverse range of linguistic and cultural backgrounds.
- Contributing content, on my specialist area of accommodation in detention, for annual publicly available reports to the Minister of State for Immigration.

Oct 2003 - Nov 2011 ICYE-UK (Inter-cultural Youth Exchange, UK) *London, UK*
Trustee - Secretary

- Led a working group of ten volunteers with a responsibility for the planning and delivery of fund-raising events.

Interests

Volunteering, playing guitar, cooking, travelling.

References

Available upon request.