Jordan Gerard Gallacher

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CAREER PROFILE:

Staff Development Engineer Coherent, Santa Clara. March 2016 - present.

I have a deep knowledge of laser science and customer applications which gives me a broadband overview of the laser industry and competitive consumer markets. The synergy of my extensive technical knowledge and interpersonal skills has given me a unique opportunity within the company to bridge the boundary between product development and sales. The role has successfully driven sales of custom optical sub-systems previously unrealised. My other key roles to the position involve writing Python code for automation and data collection, optical design using Zemax, debugging firmware & electronics, customised software development, design and testing of photodiode PID loop control systems, training of service personnel on company products, and more recently understanding the effect of electrical radio frequency (RF) noise on laser sub-systems.

Senior Development Engineer Coherent, Santa Clara. May 2013 - March 2016.

During my time as a development engineer my primary focus was on product development and project management to oversee highly technical and cutting edge laser platforms designed for use in the medical, materials processing, lightshow and scientific markets. As project manager, I was responsible for advancing the products from the initial design phases to the high volume manufacturing phase. This involved holding design reviews, engaging with component suppliers and building proof of principle breadboard systems, closely followed by the assembly of packaged prototypes for characterisation, life-testing and HASS/HALT.

Senior Development Engineer at Coherent, Glasgow. Feb 2013 - May 2013.

As a senior engineer in Glasgow I was the technical lead working on the development of picosecond amplifiers for the semiconductor and material processing markets. A deep knowledge of optical systems and electronic circuits was required to oversee all technical elements of the role. Furthermore project management skills were essential to drive the project from its infancy all the way through to the production phase and high volume manufacturing. Key skills included: Fiber laser design, understanding of electronic circuits, thermal management, optical simulations using Matlab and Zemax, RF generation, signal processing, automation and design of high voltage electro-optical systems.

Development Engineer at Coherent, Glasgow. April 2010 - Feb 2013.

My role at Coherent Scotland involved the research and development of picosecond amplifiers for commercial use in the micro-electronics and materials processing industry. During this position I gained invaluable experience on crisis management. High profile customers such as Samsung and Apple demanded on-time product deliverables for the flat panel display and touch screens markets. This necessitated time sensitive building and testing of prototypes for characterisation and life-testing. Furthermore, it required close interplay and communication between the mechanical, software and sales team to complete the release of the product within the project timeline. My key optical engineering skills included: alignment of free-space laser systems, optical design using LASCAD and Zemax software packages, characterisation of optoelectronics and optical components (including photodiodes), building regenerative picosecond amplifiers and mode-locked fiber oscillators and Titanium Sapphire based femtosecond systems.

Optical Engineer, Coherent, Glasgow, (October 2008- April 2010).

As an optical engineer my role involved the development of ultrafast femtosecond amplifiers for use in the scientific and life sciences markets. My primary focus was developing a modelocked fiber oscillator for use in a regenerative amplifier. This gave me excellent skills in fiber laser design and construction and presentation of results to senior management.

Mathematics and Physics Tutor (September 2006 - July 2008).

As a private tutor, I strengthened my communication and interpersonal skills and enhanced my ability to interpret and approach solutions from different perspectives. One to one tutoring allowed me to develop my understanding of how others learn and to understand the varied pace at which individuals grasp and understand both concepts and information. My success as a tutor was demonstrated by the high percentage of pupils who achieved their target grade, and thus access to further education in their chosen field.
Tutoring has also helped me develop my time management and planning techniques, which has been invaluable in my full time roles with Coherent.

Senior Sales Assistant, Homebase, Glasgow, (1994 - 1999)

As a member of the sales team I was rewarded for exemplary customer service. This position was undertaken as an undergraduate and allowed me to develop my interpersonal, motivational and team building skills. Although only as part time employment during my studies, I was selected for promotion to senior sales assistant.

EDUCATION:

- Ph.D. Physics, University of Strathclyde, Glasgow. (October 2003 – October 2008)
- BSc Hons Physics (2:1), University of Strathclyde. (October 1999 - July 2003)
- Hutchesons' Grammar School, Glasgow. (August 1993 - June 1999).

SKILLS AND STRENGTHS:

- Expert in data science, presentation and data analytics.
- Highly fluent in, Python, Matlab, LabVIEW, OriginPro 8.5, Microsoft Office
- Expert in Optical design using Zemax & LASCAD
- Expert in photodiodes front & back ends, photodiode circuitry and PID control systems
- Deep understanding of RF systems, optical technology and how light interacts with matter
- Highly proficient understanding of electrical design and circuits
- Development of machine learning code (Python)
- Mechanical design and drafting (SolidWorks) and thermal management.
- Interpersonal skills and highly approachable
- Cleanroom training
- Excellent laboratory and optical characterisation skills (15 years' experience)

AWARDS AND ACHIEVEMENTS:

1st place poster prize: University of Strathclyde research day, "A compact synchrotron radiation source driven by a laser-plasma wakefield accelerator". (First place prize of £250 cash among 170 PhD students, 10/06/08).

1st place poster prize: Central Laser Facility (CLF) at Rutherford Appleton Laboratory (RAL), Oxford Annual user meeting, "Undulator radiation from laser accelerated electrons". (First prize from 60 PhD students in major laser-plasma physics conference (22/12/07).

COURSES:

- Laser and radiation safety courses, University of Strathclyde (2004).
- The UK GRAD Programme, Graduate School, Girton College, University of Cambridge, UK. (19th - 24th September 2005).
- Scottish Universities Summer School in Physics (SSUSP60), Laser-plasma interactions, St Andrews, Scotland, UK. (14th-27th August 2005).
- Zemax training course, Glasgow, UK. (July 2011).
- Python for engineers training, Cambridge, UK (December 2012)
- Time management skills (January 2012).
- Project management training (July 2012).

PUBLICATIONS:

J. G. GALLACHER, M. P. Anania, E. Brunetti, F. Budde, A. Debus, B. Ersfeld, K. Haupt, M. R. Islam, O. Jackel, S. Pfotenhauer, A. J. W. Reitsma, E. Rohwer, H.-P. Schlenvoigt, H. Schwoerer, R. P. Shanks, S. M. Wiggins, D. A. Jaroszynski. A method of determining narrow energy spread electron beams from a laser plasma wakefield accelerator using undulator radiation, **Physics of Plasmas** 16, 093102 (2009).

S. P. D. Mangles, C. D. Murphy, Z. Najmudin, A.G.R. Thomas, J. Collier, A. Dangor, E, Divall, P. Foster, J. G. GALLACHER, C, Hooker, D.A. Jaroszynski, A. Langley, W. Mori, P.A. Norreys, F. Tsung, R. Viskup, B, Walton and K. Krushelnick: Monoenergetic beams of relativistic electrons from intense laser-plasma interactions. **Nature** 431, 535-538 (2004).

H.-P. Schlenvoigt, K. Haupt, A. Debus, F. Budde, O. Jäckel, S. Pfotenhauer, H. Schwoerer, E. Ro- hwer, J. G. GALLACHER, E. Brunetti, R. P. Shanks, S. M. Wiggins and D. A. Jaroszynski. A compact synchrotron radiation source driven by a laser-plasma wakefield accelerator. **Nature Physics**, 4, 130-133 (2008).

REFERENCES:

Academic:

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