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Design
Mech & **Elec**
- Solidworks
- Altium
- Kicad
- Eagle
- PRO/E
- Fusion360

programming
- Matlab
- Simulink
- Python
- LaTeX
- C / C++ / C#
- Labview

analysis
- DOE
- Regression
- FEA
- Statistics
- CFD

simulation
- ANSYS
- CFX
- SPICE

mechanical
- Machining
- CNC
- Welding

KeithWakeham
M.Eng, B.Eng, Product Engineering Manager

Experience

Product Engineering Manager
Campagnolo SRL — 08/16 - Present
While Campagnolo is one of the most recognizable brands with loyal followers, it has seen the mainstream market shift to electronic groupsets without adequate response. Lack of market innovation allowed me to approached Campagnolo knowing they wanted improved expertise in electronics and sensing and convinced them to focus on integration techniques for combining electronics with carbon fibre, an area only recently explored in research publications. I experimented and developed processes for embedding electronic sensors to survive the rigours of extreme molding pressures to create smart parts without changing visible appearance. Leading a team to explore these challenges has resulted in a new product in a new segment to be released spring 2019 utilizing these new proprietary processes.

Director Of Power Meter Technologies
4iiii Innovations Inc. — 01/14 - 04/16
Even a startup with experienced founders can struggle to find a successful product idea. Developed independently, I brought my prototype powermeter into the company with the desire to change the accessibility for elite level training tools. Turning an aesthetic mechanical part into a high accuracy load cell required bold ideas and merging advanced experimental methods with multiple sensors to create the 4iiii's Precision Powermeter. With the most complicated strain gage arrangement and calibration in the market it has resulted in the highest accuracy with the lowest market price. // Cycling powermeters quickly became a crowded market and 4iiii's needed to differentiate itself. Sponsorship at an elite level was the chosen direction to prove the technology. New prototypes designed by myself with the help of an expert firmware developer cinched the sponsorship of a world pro cycling team. The sponsorship launched in 2016 for use in races like the Tour de France by elite professionals, but more importantly lead to a contract for 100k unit sale within a year.

Project Engineering / Design Engineering
Babcock and Wilcox Canada LTD. — 10/11 - 01/14
Every company has their crown jewel technology and for B&W that is the once through steam generator (OTSG). A piece of technology that operates power plants at greater efficiency by uniquely super-heating steam. I joined design engineering where I originated and verified ASME code calculations using finite element analysis for nuclear rated components. When need arose I volunteered my knowledge on strain gages to design and conduct experiments to solve a decades old problem that had significant system life impacts. Small temperature changes in a machine with tens of thousands tubes had seen billion dollar nuclear irradiated parts designed to last 40 years start to fail prematurely. Having conducted the tests, I worked with the project head for weeks to ensure we resolved the root cause for this mysterious wear problem and was able to rectify it through small design changes of critical dimensions implemented in the TVA Bellefonte expansion project.

Maintenance Supervisor
GM Canada LTD. — 10/08 - 12/08
Successfully managed and maintained the paint shop maintenance department tasked with preserving the operation of conveyors, robots, and environmental control systems months before bankruptcy and restructuring.

OS Proficiency

Windows ★★★★★
GNU/Linux ★★★★☆
MacOS ★★☆☆☆

Languages

English ★★★★★
Italian ★☆☆☆☆

Places Lived

Top Books

The Innovator's Dilemma Clayton Christensen

Lean Startup Eric Ries

Crucial Conversations Kerry Patterson

Rebel Talent Francesca Gino

Experience Con't

Production Supervisor — GM Canada LTD. — 01/08 - 04/08

Consistently achieved production targets managing line workers assembling engines and wheels with less than 0.2 error rate. Awarded financial reward under Ideas for Excellence program for inventing tooling to eliminate ergonomic issues on several jobs.

Research Assistant — Marine Institute OSSC — 05/07 - 08/07

Developed a rescue prediction model using experimental data gathered during trials on the Atlantic Ocean enabling the operator of two offshore rigs to continue using only a single standby vessel when normally two are required.

Research Assistant — Marine Institute OSSC — 09/06 - 12/06

Assisted with setup of harsh environment video capture and performed motion analysis leading to improved rescue practices for 150 person inflatable life-rafts commonly used on modern super-liners.

Education

2009 - 2012 **Master's Degree in Mechanical Engineering** — Memorial University

Development of an Active Suspension Scale Vehicle Platform

Explored a new control scheme replacing expensive load cells with current sensing. Developed a dynamic test rig and validated the control scheme.

2003 - 2009 **Bachelor's Degree in Mechanical Engineering** — Memorial University

Patents and Publications

Pedivella di Bicicletta dal lato trasmissione, dotata di rilevatore di sforzi / deformazioni per un misuratore dicoppia o di potenza, nonche' metodi correlati
Bicycle Crank arm from the transmission side, equiped with strain sensors for torque or power monitoring, and related methods — IT102018000005302

Rilevatore di sforzi / deformazioni per un componente di una trasmissione di bicicletta
Effort sensor for a component of a bicycle transmission — IT102018000005292

Componente di bicicletta in materiale composito e relativo processo di fabbricazione
Bicycle component / manufacturing process in composite material — IT102018000005294

Componente di biciletta dotato di sensore di sforzi / deformazioni compensato in temperatura
Strain gage temperature compensation for bicycle component — IT102018000005299

System and method for bicycle power measurement and energy supply
Application phase — WO2017165448A1

Adhesively coupled power-meter for measurement of force, torque, and power and associated methods
Granted in multiple countries — WO2016030768A2

Model Complexity Requirements in Design of Half Car Active Suspension Controllers
ASME 2011 Dynamic Systems and Control Conference and Bath/ASME Symposium on Fluid Power and Motion Control — Proceedings 2011

Keith Wakeham, **kwakeham@***gmail.com*