

James Macdonald

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Summary

Senior Product Design Engineer, with the most recent 9 years working at Dyson. I am motivated to design products to the highest standard within time and budget, have strong problem solving skills, great attention to detail, and effective working with other teams.

Career History

Product Designer, Backyard

October 2010 – present

Freelance designer of kitchenware and furniture items for MIT Legend in Taiwan. Some self-developed projects also completed or currently in progress.

Senior Design Engineer, Dyson Ltd, Malmesbury, UK

December 2010 – July 2020

My role included working on a number of innovative projects and developing the product / technology from concept to production stage.

Key Skills and Responsibilities:

- Prototype rigs build, testing and user trials to assess risk and to meet spec
- Evaluating risks with FMEA, and creating requirements
- Problem solving skills to meet requirements
- Design of parts for mass production, usually injection moulding
- Acoustics, airflow and pick-up performance development
- Evaluating new technology scope and presenting results
- Complex mechanism design, tolerance stacks
- Costing, Timeplans
- Parts assembly ownership and transfer to MY (Malaysia) team
- Working with other teams such as Structural Analysis, Moldflow and Materials

Key Project Achievements:

- AM09 fan heater: Developing air amp technology and parts detailed for production
- V8 stick vac: Bin empty mechanism design with tight space constraints. Dynamic tolerance stacks to ensure function at limits. User trials to determine force in each scenario and targets set. Full mechanical testing at limits and life testing with dust. Structural analysis working with other teams. Proven robust working design: no reliability issues noted since launch in 2016.
- V10 stick vac: Development of main body and motor bucket/ motor mount from early concept to detail design. Working with Motors to integrate latest motor, Acoustics, Analysis and Test team. Robustness testing with speed camera. Design for assembly: tight space & cable connections.
- Project (TBC): Mechanism/ part assembly, sealing with moving parts. User trials to capture all risk scenarios, targets then created including agreed safety factor. CNC machined parts produced for mechanical validation testing prior to transfer to MY team.

- Project (TBC): Working with NPI (New Product Ideas) team in early stage technology development. Modular rig produced to test different geometries and give accurate results. Pick up testing to understand and demonstrate effectiveness of technology. Summary and results report for review.
- Project (TBC): Ownership of cleanerhead assembly. Fast project with parts development, requirements setting and communicating with MY team to transfer stage.
- Project (TBC): Testing new technology & summarising effectiveness, key skills included bringing MY team on side with the project before transfer.

Designer, Colin Ross Ltd, Taipei, Taiwan

December 2008 – August 2010

Colin Ross is a large trading company, selling houseware products worldwide. This includes Kitchenware, Bathroom accessories, gifts, and small furniture items.

As an in-house designer I was responsible for producing new product concepts, graphic design, modifying existing designs, and developing products with overseas designers. I also gained valuable experience visiting factories in China and Taiwan and attending tradeshows in Hong Kong.

Senior Designer, SMC, London, UK

June 2003 – September 2008

SMC design and install high-tech residential systems such as home cinemas, multi-room audio and touchscreen control systems.

My role was to design and produce the drawings and information prior to and during construction stage. This included coordinating our design and equipment with Architects, Interior Designers and M&E Consultants.

Working as the designer on the most expensive new development in Kensington, I was responsible for the design of all our systems and solving issues that arose.

My role also included project management on a couple of small projects. I was responsible for receiving payments from the client and contractor, ordering and supplying equipment to site, and ensuring the projects came together on time and with a good profit margin.

Product Design Course Placement, Diamonite Aircraft Furnishings Ltd, Bristol, UK

September 2000 – August 2001

A year's course placement gave me experience in the design department of a company that manufactures aircraft interiors in composite and fabricated materials.

My role included draughting manufacturing drawings of aircraft components for production on the factory floor, and creating marker renderings of aircraft interiors for sales proposals.

Designer / Maker, Lush Longboards Ltd, UK

1999 – 2003

Started by a school friend and myself, Lush Longboards is a long skateboard company and online shop. I was involved with board design and manufacture, logo design, branding, clothing and screen-printing.

Work Experience, Pentagram Design, London, UK

June 1997

Work experience in this large product and graphic design company provided me with a useful insight into a design studio environment, and helping out with various tasks in the office and workshop.

Education

BSc (Hons) Product Design (2.1), Bournemouth University

1998 – 2002

The course covered all aspects that have to be considered for product design. This includes design for manufacture, materials, ergonomics, aesthetics, customer, function, technology, economics and safety. The final project included a fully working visual model.

Kingswood School, Bath

1991 – 1998

A Levels: Design Technology, Maths, Geography

Software / Skills

Siemens NX, AutoCAD, Solidworks, Photoshop, Illustrator, ANSYS workbench (basic), Moldflow Adviser (basic), Cinema 4D (basic), Teamcenter, Excel, Word, Sage Accounts Line 50.

Freehand: Fast conceptual sketching, strong marker rendering, painting in acrylics.

Model making: Detailed working prototypes in plastics, wood, metal.

References available on request

For examples of work please visit www.jm-portfolio.com