Electromagnetic System Design Engineer

- Electromagnetics, Coil Design
- Development Tools - MATLAB, COMSOL, CST, ANSYS
- RF Coils, MRI System

Magnetica is a medical device engineering and technology company specialising in the development and supply of Magnetic Resonance Imaging (MRI) systems, sub-systems and technologies.

We are focused on commercialising our dedicated compact MRI systems to bring high-quality imaging closer to the patient point-of-care. With a strong pedigree in MRI and NMR sub-system development and supply we have created a company with compelling IP and a broad technical team, to deliver diagnostic imaging systems and sub-systems to clinicians.

With proven capabilities in R&D, product commercialisation, manufacturing and supply, the company is at a stage of growth and opportunity to provide a unique integrated product offering in the MedTech sector.

From an operational and delivery perspective, the Electromagnetic System Design Engineer will:
- Be responsible for design, development, and testing of electromagnetic coils in MRI such as Gradient Coils.
- Be responsible for computer programming of the numerical solution of mathematical equations governing electromagnetism in MRI sub-system design such as Gradient Coils.
- Prepare and review of electromagnetic design calculations, 3D modelling and Finite Element Analysis (FEA).
- Conduct and/or participate in formal design review meetings, including preparation of presentation material.
- Take concept designs and be responsible for engineering projects from concept through to completion – conduct and/or participate in technical reviews of requirements, specifications, designs, and other relevant standards as part of defined projects.
- Work with our Superconducting Magnet, Gradient Coil and Radio Frequency (RF) Coil domain experts to ensure clarity of requirements and specifications for your subsequent engineering activities.
- Develop/maintain appropriate documentation and follow processes to ensure the MRI sub-systems you have designed comply with appropriate standards and are fit for use within medical devices.
- Simulation of Electrical elements of Coils, sub-system components in 3D modelling software such as CST Studio/COMSOL Multiphysics/ANSYS as well as using custom made scripts.
- Be a reference for the multi-disciplinary design team for mechanical design aspects.

To be successful in this role you will have experience as an Electromagnetic System Design Engineer within a similar company. You will have experience across the following:
- Post-graduate degree (Masters or PhD) in Engineering (Electrical, Electronics, Biomedical, Mechatronics, Industrial) or Physics, with strong focus on electromagnetism
- Experience with programming electromagnetic equations in MATLAB
- Strong foundation in electromagnetism, especially formulating and solving Maxwell’s equations numerically using custom developed scripts/computing techniques.
• Product development lifecycle experience in electromagnetic coils, systems, or similar products.
• Prior experience in formulating and solving multi-physics electromagnetic equations using commercial software for Finite Element Analysis (FEA) such as COMSOL Multiphysics, CST Studio, ANSYS or others.
• Performance analysis of electromagnetic systems by calculating their features such as inductance and resistance.
• Strong programming skills in Python and/or C/C++
• Working knowledge of electromagnetism in MRI systems and subsystems
• Experience in computer simulations and designs of Gradient Coils and RF Coils in MRI.
• Experience in engineering tools & methodologies like DFMEA, Root Cause Analysis, VAVE Engineering.
• Performance analysis of electromagnetic systems by calculating the interaction between different electrical systems such as superconducting magnets interacting with gradient coils in MRI.
• Worked within an ISO 9001 and/or ISO 13485 accredited organisation.
• Accuracy, attention to detail and completes tasks (a finisher).
• Self-driven with good time management and prioritisation skills.
• Ability to successfully collaborate with technical and non-technical staff.
• A team player that can also ensure individual workload is successfully delivered.
• Proven problem-solving ability and enjoys learning and applying new skills
• Strong autonomous background and ability to self-manage time and tasks.
• Ability to work under pressure and time constraints.
• Commercial acumen, resilience, and a flexible approach to dealing with changing priorities and demands.

To be considered, please submit your resume and a cover letter outlining your core capability for the role, demonstrated experience of how you have delivered outcomes [here](#).

Alternatively, for a confidential discussion, please contact Peter Starling on +61 7 3305 5800