### Purpose of role

To develop an accurate Digital Twin for automotive servo drives, including multiple physical effects and influences in a very fast simulation with high levels of accuracy through the deployment of AI.

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<thead>
<tr>
<th>Main responsibilities</th>
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<tr>
<td><strong>1</strong> Organisational, Operational and Technical Familiarization</td>
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<td><strong>2</strong> Gain understanding of Digital Twin System Interface</td>
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<td><strong>3</strong> Develop comprehensive inverse models</td>
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<td><strong>4</strong> Embed Comprehensive Model in Digital Twin System along with Additional Physics of Electrical/Electronics and Controls and Demonstrate Functionality</td>
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<td><strong>5</strong> AI inclusion for incorporating non-linearities</td>
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<td><strong>6</strong> Digital Twin system for including the AI based models</td>
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<td><strong>7</strong> Carry out robustness study/validation</td>
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<td><strong>8</strong> Embed the knowledge within ZF (documentation, training/demonstration). Dissemination (within ZF and University of Nottingham PEMC Research Group; case studies for ZF marketing purposes).</td>
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## Person specification

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<th>Essential</th>
<th>Desirable</th>
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| **Skills**           | ▪ Be able to explain technical concepts to different stakeholders.  
▪ Be able to work effectively with colleagues and stakeholders in a wide range of roles.  
▪ Be a proactive individual able to work to fixed business deadlines.  
▪ Be enthusiastic and self-motivated with the drive to embed new knowledge and take full ownership of the project and see it through to resolution.  
▪ Have the ability to plan a project, execute the plan and make adjustments. | ▪ Be able to think creatively when solving business challenges.                                   |
| **Knowledge and experience** | ▪ Knowledge of electric drives and their applications.  
▪ Experience of coding (e.g., ideally Matlab and Python).  
▪ An understanding of electrical drives Multiphysics.  
▪ Experience of using test rigs for testing electromechanical systems.  
▪ Competent in using Microsoft office or similar.  
▪ Experience in the development of AI models for deep learning. | ▪ Knowledge and understanding of the concepts of reduced order models.  
▪ An appreciation of engineering design principles.  
▪ Experience with customer engagements and building relationships.  
▪ Experience in a research environment.  
▪ Project management experience. |
| **Qualifications, certification, and training (relevant to role)** | ▪ MSc in electrical / electronic engineering, Computer Science, or a related field with industrial experience. | ▪ PhD in Electrical Engineering, Computer Science, or a related field.                             |
| **Statutory, legal or special requirements** | ▪ Willing to travel within the UK.                                                                                                                                                                         |                                                                                            |

The University of Nottingham is focused on embedding equality, diversity, and inclusion in all that we do. As part of this, we welcome a diverse population to join our workforce and therefore encourage applicants from all communities, particularly those with protected characteristics under the Equality Act 2010.
Expectations and behaviours

The University has developed a clear set of core expectations and behaviours that our people should be demonstrating in their work, and as ambassadors of the University’s strategy, vision and values. The following are essential to the role:

**Valuing people**
Is friendly, engaging and receptive, putting others at ease. Actively listens to others and goes out of way to ensure people feel valued, developed and supported.

**Taking ownership**
Is clear on what needs to be done encouraging others to take ownership. Takes action when required, being mindful of important aspects such as Health & Safety, Equality, Diversity & Inclusion, and other considerations.

**Forward thinking**
Drives the development, sharing and implementation of new ideas and improvements to support strategic objectives. Engages others in the improvement process.

**Professional pride**
Is professional in approach and style, setting an example to others; strives to demonstrate excellence through development of self, others and effective working practices.

**Striving to be inclusive**
Builds effective working relationships, recognising and including the contribution of others; promotes inclusion and inclusive practices within own work area.

Key relationships with others

- **Line manager**
  - Line Manager, PEMC Research Group
  - Line Manager, ZF Automotive UK Ltd

- **Role holder**
  - Artificial Intelligence Based Digital Twin Developer for Automotive Electrical Drives (KTP Associate)

- **Key stakeholder relationships**
  - ZF Automotive UK Ltd
  - Academic Team
  - UoN KTP Team
  - KT Adviser