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The Future of Engineering: AI in Engineering

An ECST webinar series

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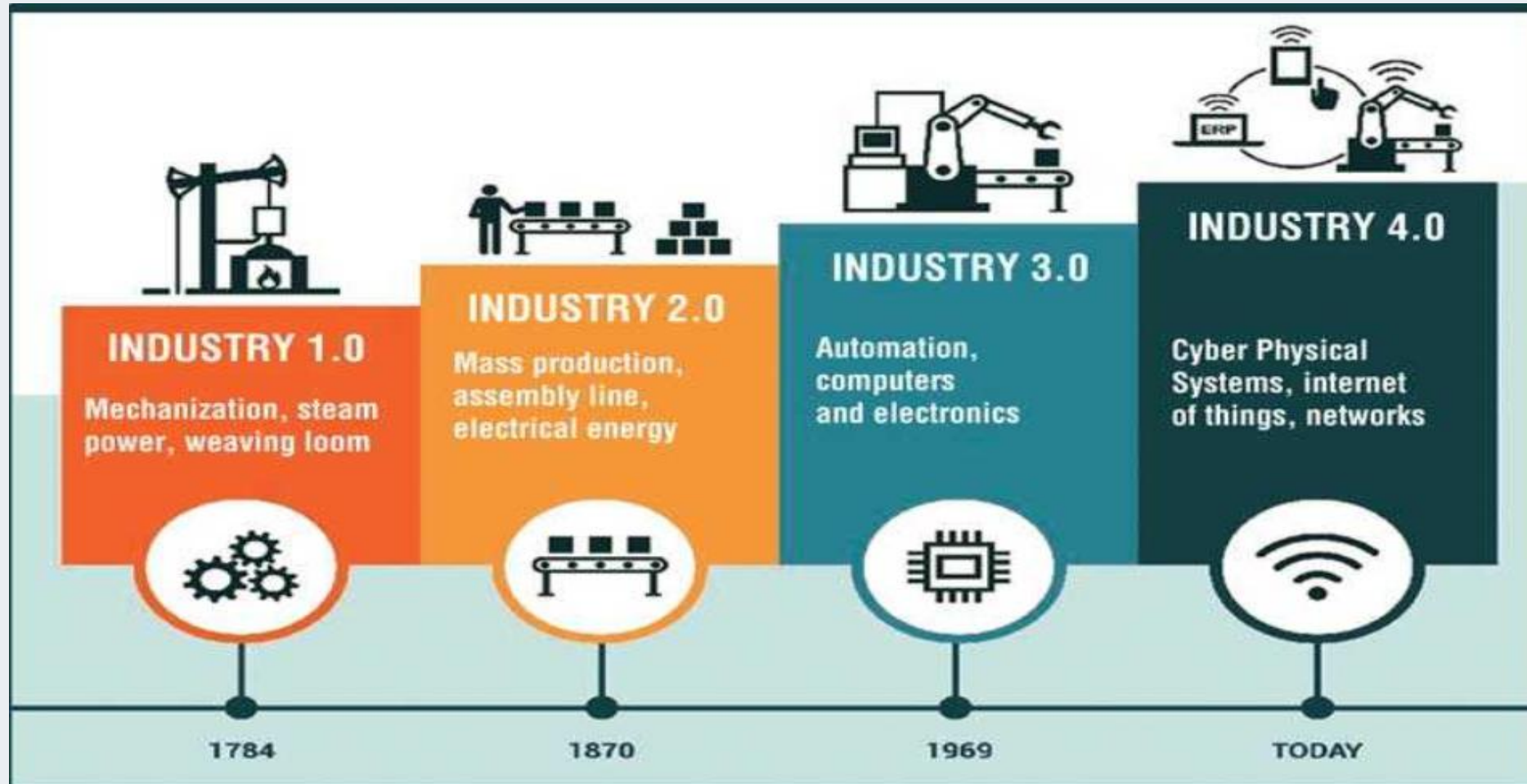
Our Guest : Dr Andrea Hayes

Dr Andrea Hayes is a lecturer in Game Design in the Digital Arts Department at the University of the Witwatersrand. Her research focuses on video games as complex cultural, technological and ecological systems, with particular interest in how game worlds, mechanics, narratives, and player interactions shape meaning. Her work engages with game studies, environmental storytelling, spatiality, gender representation, and the Anthropocene in games.

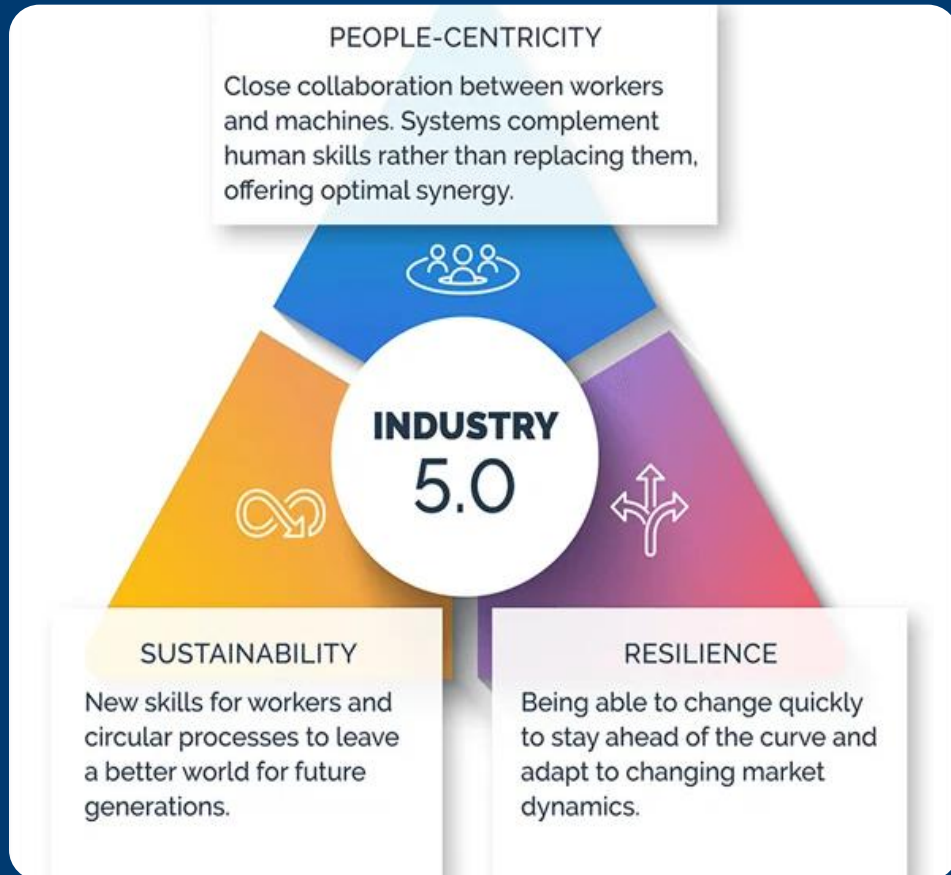
As both a researcher and educator, Andrea is interested in how game design can bridge creative practice, theory, technology and social inquiry. Her work contributes to ongoing conversations about the role of games in education, culture, sustainability and systems thinking.



Evolution of Engineering



Engineers of the Future



“The engineer of tomorrow will work alongside Artificial Intelligence rather than compete against it”

Applications of AI in Engineering

Mechanical Engineering

- Predictive maintenance
- CAD optimisation
- Generative design

Electrical Engineering

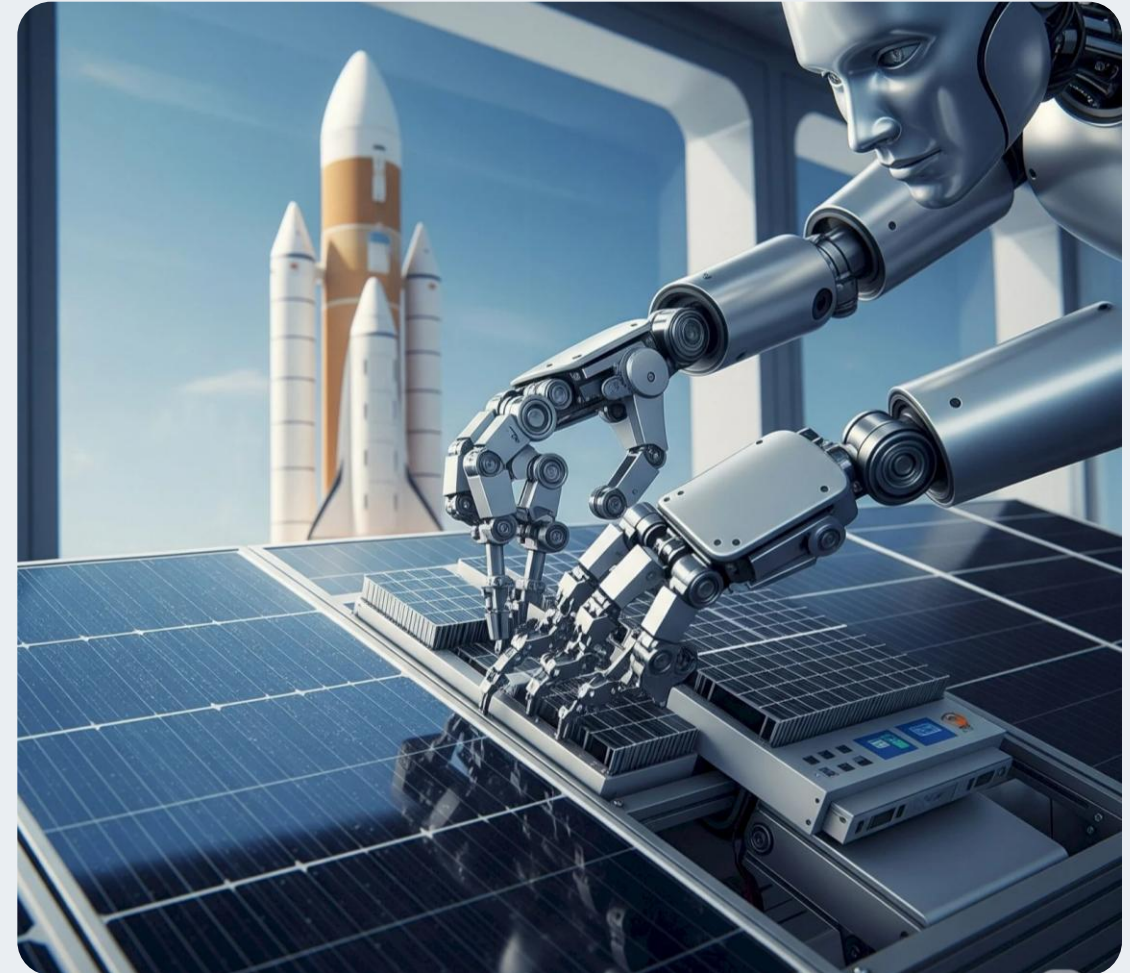
- Smart grids
- Fault detection
- Energy forecasting

Civil Engineering

- Smart cities
- Structural monitoring
- Digital twins

Mining

- Autonomous vehicles



AI Skills Engineers Need

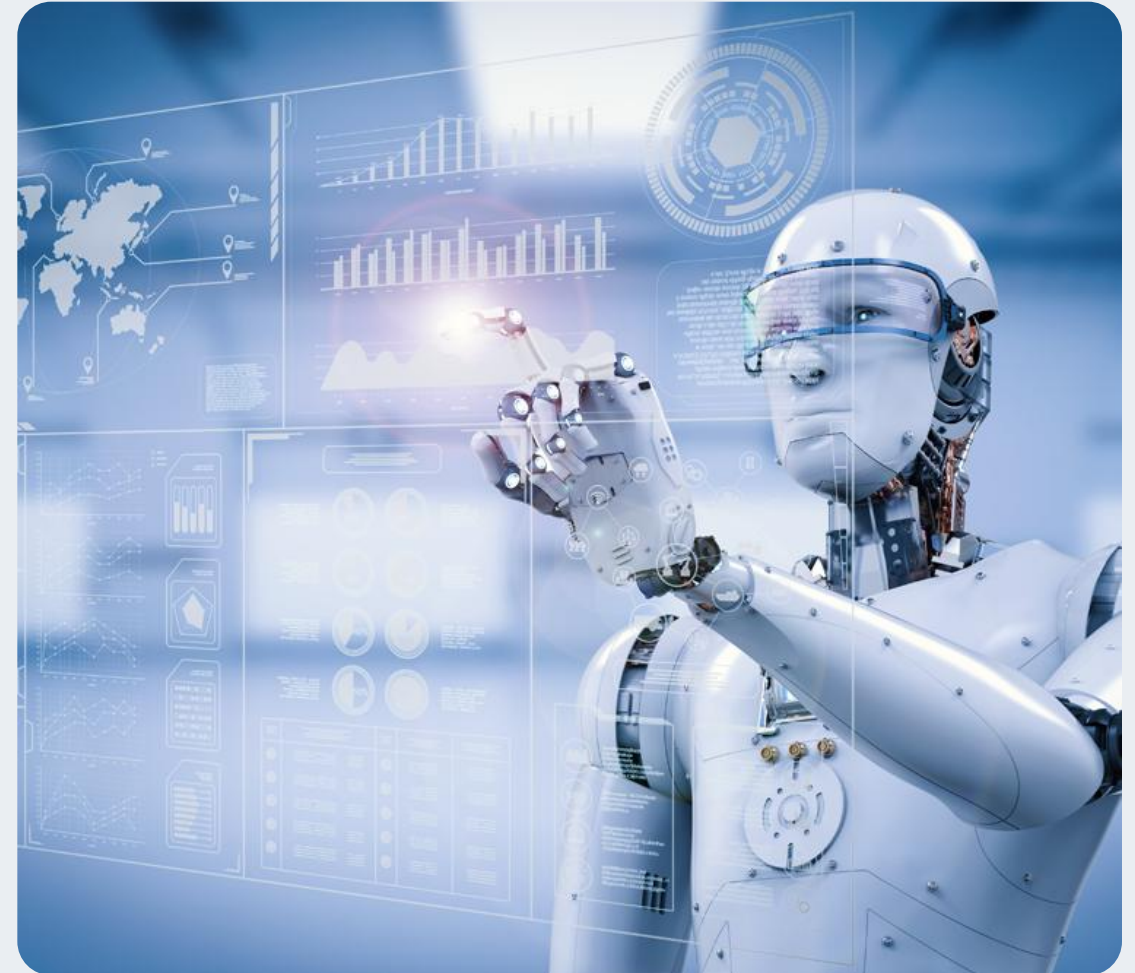
- Data
- Automation
- Machine Learning basics
- Programming
- Robotics
- Ethics
- Systems Thinking



Opportunities for Students

AI creates careers such as

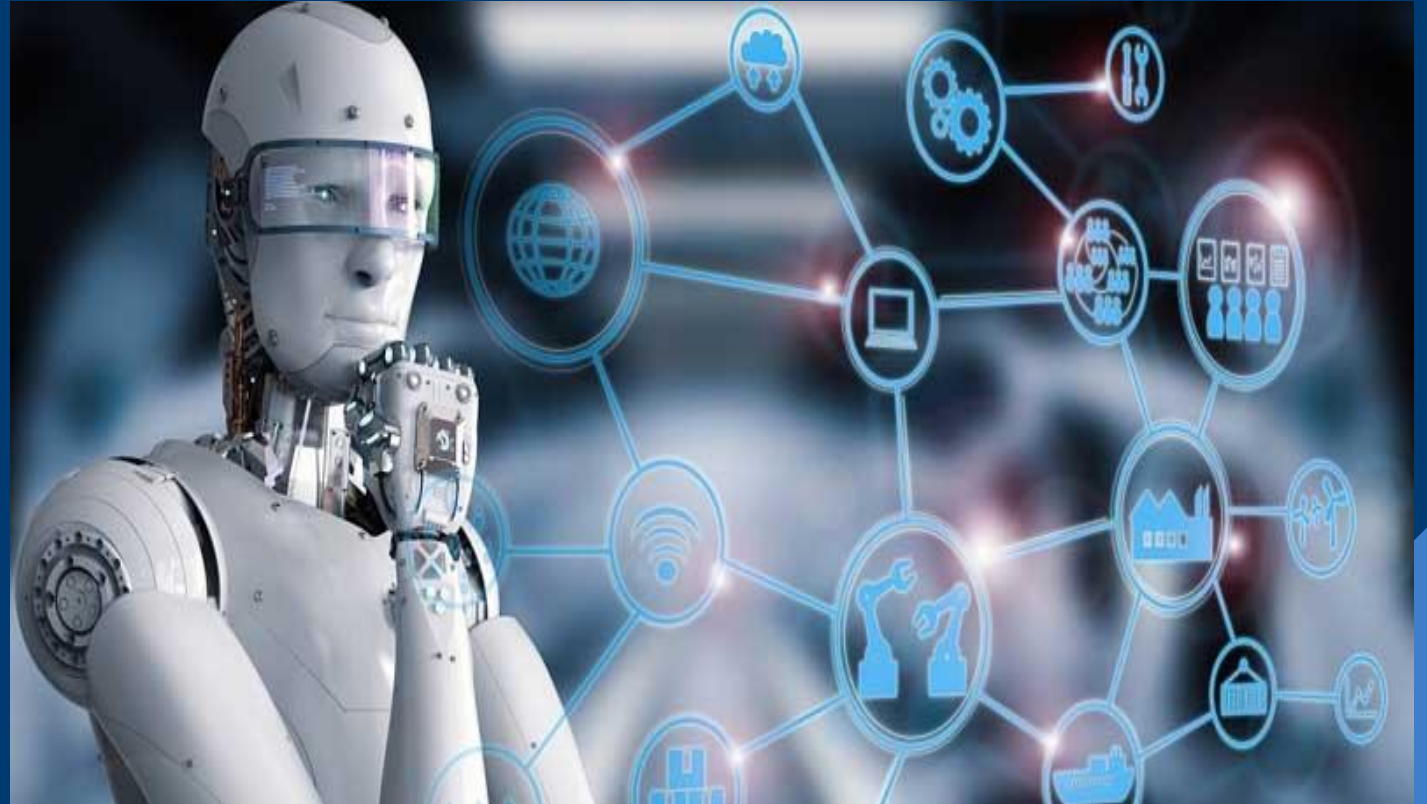
- AI Engineer
- Robotics Engineer
- Data Engineer
- Automation Engineer
- Smart Manufacturing Engineer
- Digital Twin Specialist
- Autonomous Systems Engineer



Challenges of AI

- Technical limitations
- Ethical Concerns
- Job displacement
- Cybersecurity
- Regulatory Issues

*AI should augment engineers
not replace them.*



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Discussions with Dr Andrea Hayes



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Contact and Information Resources

Thank you for your time and partnership.

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