



UNIVERSITY OF  
NEWCASTLE

# SCHOOL OF COMPUTER AND INFORMATION SCIENCES

**Delivering Responsible AI, Advanced Computing, and Mathematical Solutions for Industry and Materials Applications**

**The School of Computer and Information Sciences (SCIS) delivers a cohesive portfolio of industry-aligned research and innovation that integrates responsible artificial intelligence, advanced machine learning, cyber security, data science, computer science, information technology, and applied mathematics. Our work bridges foundational theory with deployable solutions across data-intensive and high-impact domains.**

## PARTNERSHIP CAPABILITIES

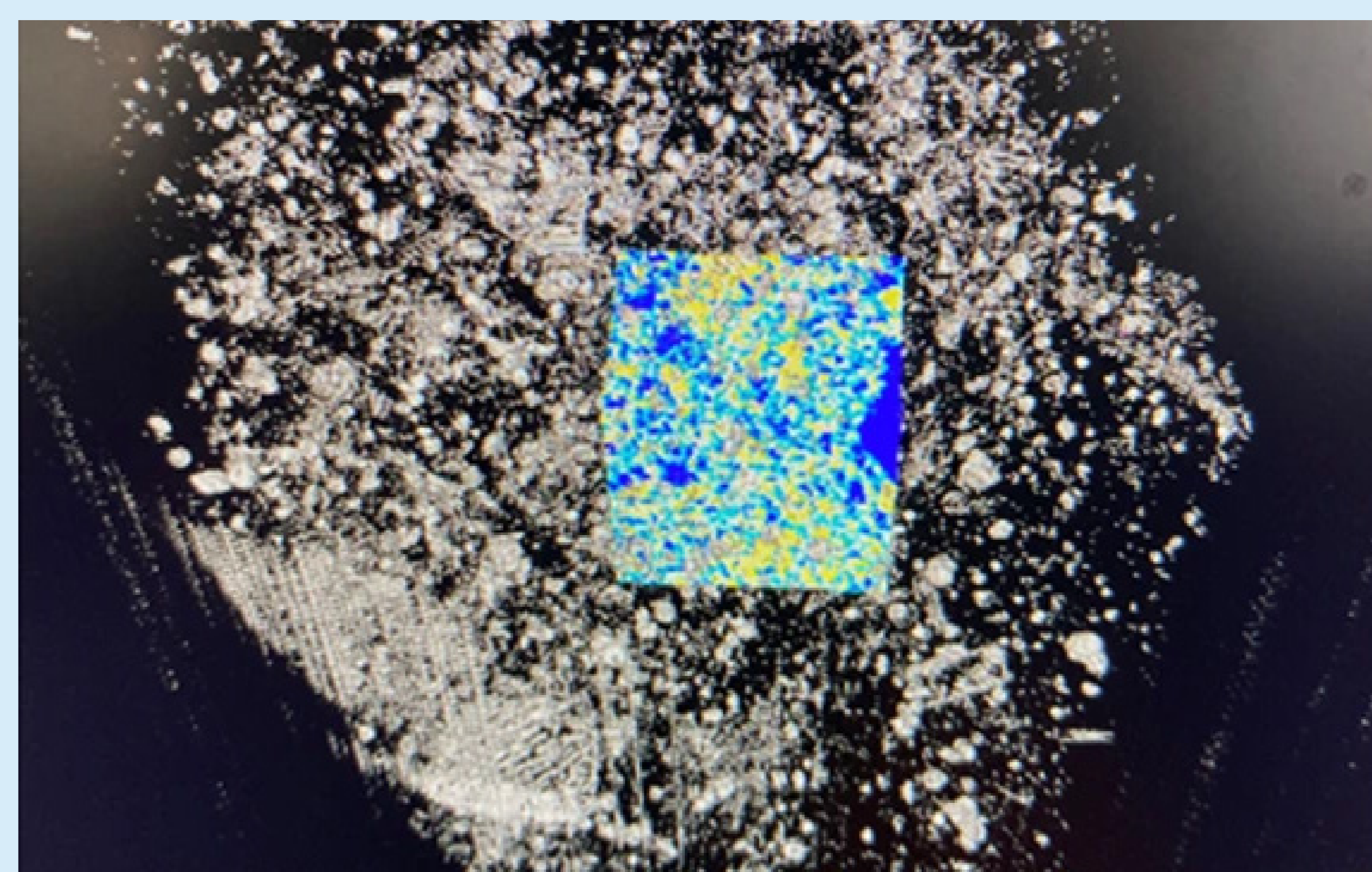
- **Applied Research:** Expertise in responsible AI, machine learning, cyber security, data science, and applied mathematics
- **Technology Development:** Co-development of industry-ready AI and computing solutions
- **Strategic Consulting:** Support for safe and effective adoption of emerging technologies
- **Optimisation and Advanced Analytics:** Mathematical modelling, optimisation, simulation, and data driven decision making for complex industrial systems
- **Workforce Development:** Industry training and capability building in AI and computing

## PROVEN IMPACT

- **Trust in AI:** Enhanced system reliability through responsible and transparent design
- **Sustainability:** Advanced modelling and optimisation for environmental solutions
- **Risk Reduction:** Decreased deployment risks through rigorous testing and validation
- **Innovation Acceleration:** Scalable, industry-ready technologies across multiple sectors

## INSIDE THE MATERIAL: AI POWERED MICROSTRUCTURE ANALYSIS

SCIS researchers develop innovative data-driven methods to reveal how complex material microstructures influence real-world performance. Using 3D imaging combined with machine learning and advanced statistical analysis, this project delivered automated, high-resolution characterisation of metallurgical coke. These techniques enable precise analysis of structural variability, supporting improved process design. The research showcases the School's strengths in applied data analytics, imaging, and computational methods, with strong relevance to materials engineering and heavy industry.



## CONTACT US:

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