Bright future beckons for metrology researcher

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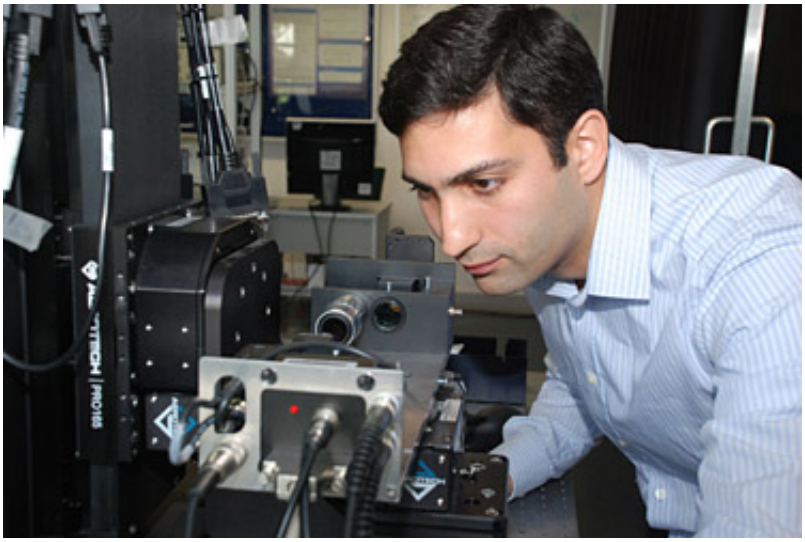


A BRIGHT future beckons for a University of Huddersfield metrology instrumentation designer who has recently completed his doctorate, won a national award and will now embark on a project to bring a patented product to the market.

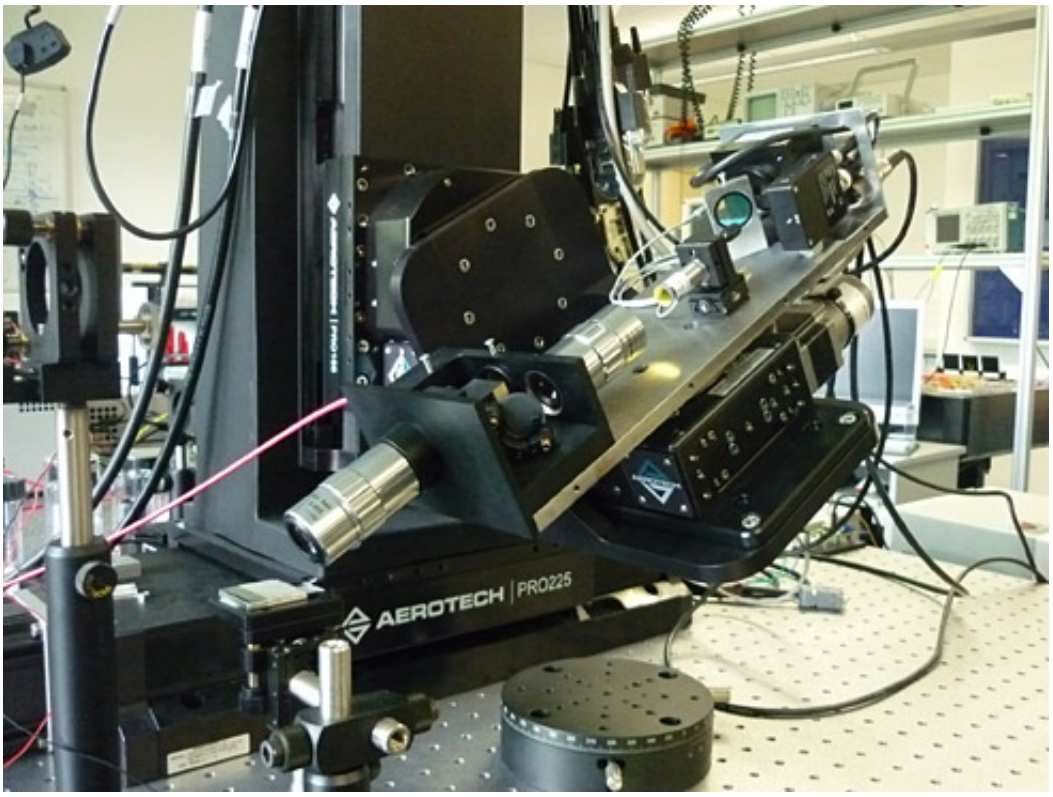
The University has earned a reputation as one of the foremost centres for surface metrology research in Europe through the work of scientists and engineers in the EPSRC Centre for Innovative Manufacturing in Advanced Metrology, though it was an MSc in Control Systems and Instrumentation that first attracted young researcher Hussam

Muhamedsalih (pictured) to Huddersfield.

Now, five years later, Dr Muhamedsalih recently completed his PhD and is also the recipient of the 2013 Postgraduate Award from the City of London's Worshipful Company of Scientific Instrument Makers for a product that is already revolutionising embedded surface metrology.

The product is a new optical interferometry system for fast areal surface measurement of microscale and nanoscale surfaces that are immune to environmental noise. The innovative process uses wavelength scanning interferometry together with an acousto-optic tunable filtering technique to measure surfaces with large 'step heights'.

The system can be used for online or in-process measurement for assessing a wide range of surface textures. The Huddersfield system has the potential to achieve nanometre measurement accuracy within the context of manufacturing shop floor systems.



The new optical interferometry system for fast areal surface measurement of microscale and nanoscale surfaces.

Dr Muhamedsalih used the research as a basis for his PhD and he has been working with Dr Feng Gao and eminent surface metrology professor, Professor Xiangqian Jiang.

The team have patented the product and it has already caught the attention of a major company that are keen to take it into production.

Born in London himself, Hussam Muhamedsalih was raised in Iraq and studied at the Baghdad College, which also boasts scientist and BBC TV presenter Professor Jim Al-Khalili among its former pupils.

Dr Muhamedsalih completed his undergraduate degree and Masters in

laser and optoelectronics at the Al-Nahrain University in Baghdad before casting his eye overseas to enhance his qualifications in Britain.

"I looked at a number of universities, but Huddersfield particularly impressed me," said Dr Muhamedsalih. "I met the course leader Professor Gary Lucas and saw the facilities. But it was the modules on the course that finally persuaded me, because they were just what I was looking for.

"I completed my Master's thesis under the supervision of Professor Jiang on the design of an objective lens and from this she offered me a PhD position. My aim when I came to Britain was for a PhD, so this was perfect."

His Master's research formed the backbone of his doctoral work, which was to design the entire instrument. The finished design can measure surfaces up to hundreds of micrometres – a micrometer is one thousand times smaller than millimetre – and it attracted considerable attention when it was unveiled at the EUSPEN exhibition (European Society for Precision Engineering and Nanotechnology) in Berlin in May earlier this year.

Hussam Muhamedsalih will officially receive his doctorate at the University's Awards Ceremonies this month, but he will not be leaving Huddersfield as he has now been offered a research fellowship to continue his work on the project.

Provided by University of Huddersfield