DSU's Dr. Pokrajac Achieves Algorithm Advancement

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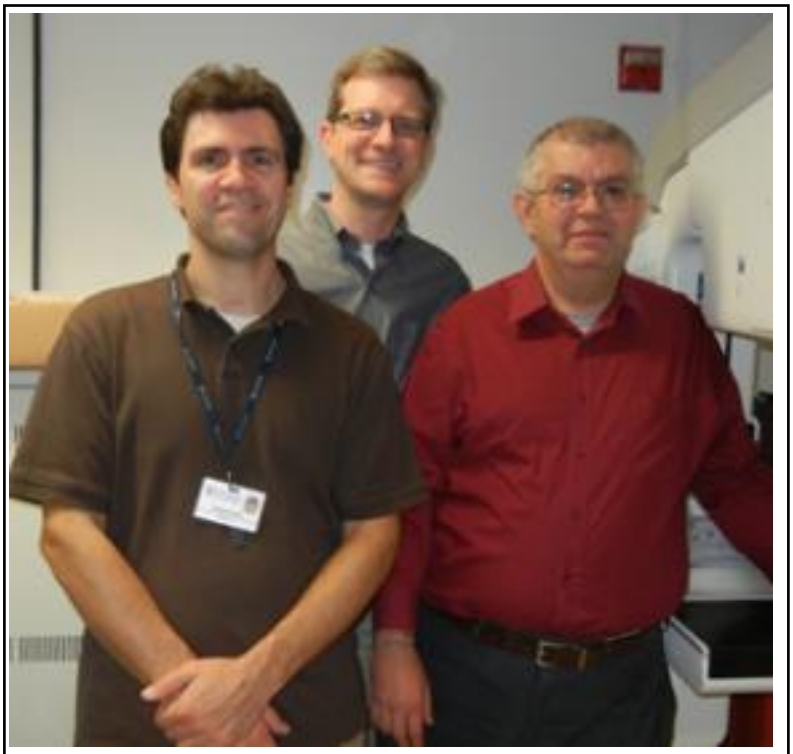
Dr. Dragoljub M. Pokrajac, professor of computer and information sciences, has joined two other professors at the University of Pennsylvania to come up with a new algorithm that could lead to a more accurate diagnosis of breast cancer.

The algorithm – which has already achieved provisional patent status – enables the creation of a breast model with specific tissue and ligament compositions that can give doctors quick guidance on the best imaging technique – such as mammograms, MRI, CAT scans, etc. – that should be used to provide the best diagnosis information.



(L-r) Dr. Predrag R. Bakic, Dr. Andrew D.A. Maidment, both of the University of Pennsylvania, and DSU's Dr. Dragoljub Pokrajac have developed a new algorithm that could lead to a more accurate diagnosis of breast cancer.

"Previously, the creation of such models would take days," Dr. Pokrajac said. "We can do it in 10 seconds."

The new advancement is primarily the work of Dr. Pokrajac, along with Dr. Andrew D.A. Maidment and Dr. Predrag R. Bakic of the University of Pennsylvania**.**

"The best thing about this advancement is that it can determine very quickly the best imagery technique that should be used to visualize the breast, thereby saving a lot of time and money," the DSU professor said.

Dr. Pokrajac said the algorithm allows scientists to quickly create models that can vary the parameters of the breast anatomy and imaging – such as the ligament and skin thickness, the percentage of fat and even the x-ray voltage – to reach conclusions about the most effective imaging technique that should be used.

In addition the algorithm's medical application, Dr. Pokrajac said it also has application for the analysis of materials. "We are actively looking for someone in material science who would be interested in trying simulated modeling on materials," he said.

The research that resulted in this algorithm was partially funded by a Department of Defense grant, of which Dr. Fengshan Liu, professor of mathematics, was the principal investigator. Dr. Xiquan Shi, associate professor of mathematics, and Dr. Charlie Wilson, associate professor of biological sciences, were co-principal investigators, while graduate students Feiya Chen and Fatima Boukhari also assisted in the research.

The provisional patent was funded by the DSU College of Mathematics, Natural Sciences and Technology, which is led by its dean, Dr. Noureddine Melikechi. Support was also provided by the Office of Innovation & Economic Partnerships at the University of Delaware.

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