

# RECURSIVE HIERARCHICAL SEGMENTATION (RHSEG) PRE-PROCESSING ENGINE: FOR ANALYZING IMAGERY DATA

## NASA's Goddard Space Flight Center

In 2002, NASA's Goddard Space Flight Center issued a nonexclusive license for its Recursive Hierarchical Segmentation (RHSEG) Pre-processing Engine software to Bartron Medical Imaging, LLC, a small minority-owned, high technology company. Bartron has since developed a product for use in medical imaging (Med-Seg™) and has reported that the RHSEG Pre-processing Engine enabled the company to successfully analyze and extract meaningful and significant features from grayscale data that was previously indistinguishable by the human eye. In July 2003, the University of Connecticut School of Dental Medicine purchased a Med-Seg device. Preliminary studies indicate potential for dramatic improvements in diagnosing osteoporosis.

The technology was developed over a period of 20 years by Dr. James Tilton for use in remote sensing. In 2002, the Commercial Technology Development (CTD) Program at GSFC's Technology Commercialization Office awarded Dr. Tilton \$85K in funding for further development of the RHSEG project. Bartron learned of RHSEG at NASA's New Partnerships in Medical Diagnostic Imaging Workshop in 2001. Seeing RHSEG as the key to differentiating difficult-to-see details from a complex matrix background, Bartron worked closely with the Office of Technology Transfer and Center for Technology Commercialization, developing the license application and commercialization plan. Dr. Tilton provided technical guidance for Bartron's Med-Seg device.

The technology was also featured at Goddard's 2004 New Technology Reporting Awards Program because of its successful transfer to Bartron Medical Imaging, LLC. In addition to the successful transfer to Bartron, the RHSEG software is also being used by multiple NASA programs as well as in academia, making it a spin-in and spin-out success.

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