

# Real-time automated detection of railroad rail flaws utilizing image processing and pattern recognition

Mr. Xavier Gibert

1930-2030, Tuesday, 3 November 2009

Innovation Hall, Room 135

## Abstract:

Xavier Gibert will be interviewed by Prof. Hintz and students as part of the Introduction to Digital Image Processing class, ECE-537. He will be discussing real-time automated visual inspection of railroad rails at high speeds and the application of techniques for automatic detection of cracks. This will include the development of real time signal processing algorithms for optical rail profile analysis, including rail type detection under partial occlusion as well as the development of digital filters to remove sun interference and adjust sensor misalignment.

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## Brief Bio of Mr. Gibert

Xavier Gibert received his MS degree in Electrical Engineering at the University of Maryland, College Park in 2003 with a major in Communications and signal processing and a minor in automatic control. His BS in Telecommunication Engineering is from the Universitat Politecnica de Catalunya in 2001. He is currently a Senior Scientist with Ensco, Inc., a local company which offers products and services in support of security; expert system integration for avionics; direct support to our nation's space program; global weather services for safe airline travel; and safety, security assurance, and efficiency for rail transportation. As the leader of the Image Processing Group, he supervises R&D projects and performs research related to automatic inspection for the rail industry. In 2005-6, he was part of Team Ensco which participated in the DARPA Grand Challenge. This group produced a vehicle that autonomously traveled 91 miles in the Mojave Desert, placing 6th out of 23 entrants.