

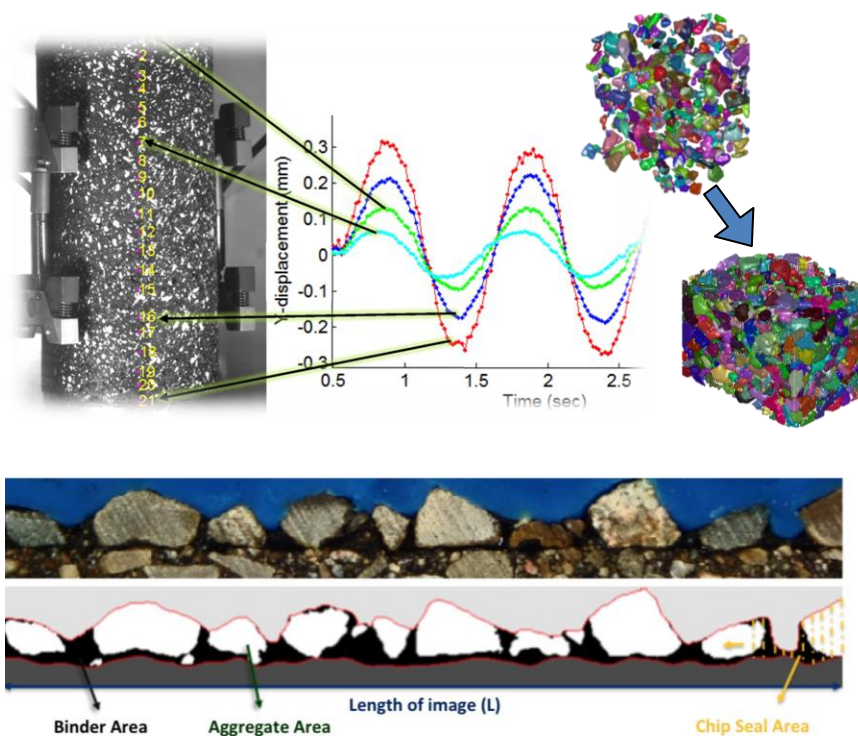
# Applications of image processing techniques in pavement and geotechnical engineering

**Dr. M. Emin Kutay**

Michigan State University

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METU Civil Engineering Department, K1 Building Seminar Hall



## Outline

- Internal structure characterization using 2D digital and 3D X-ray CT imaging using
  - Granular materials
  - Foamed asphalt
  - Landfill clay caps
  - Chip seal
- 2D image correlation and 3D stereo vision applications
  - Strain distribution during lab testing
- Special algorithms
  - Pattern tracking for development of new lab tests (Asphalt Foam Collapse Test)
  - Edge detection algorithms for strain measurement

## Biography

Dr. M. Emin Kutay is an Associate Professor at the Department of Civil and Environmental Engineering at the Michigan State University. His research interests include experimental characterization, analytical and numerical modeling techniques in pavement and geotechnical engineering, image analysis and processing including the X-ray Computed Tomography. Dr. Kutay received his B.S. degree from the METU Civil Engineering Department in 2001, and M.S. and Ph.D. degrees from the Department of Civil and Environmental Engineering at the University of Maryland – College Park, in 2002 and 2005, respectively. Dr. Kutay's contributions to pavement engineering have been recognized through several awards including the Association of Asphalt Paving Technologists (AAPT) Walter J. Emmons Award for the best paper in 2008 and AASHTO National Competition Award for representing United States in the World Road Association PIARC Prizes 2007 international competition. Dr. Kutay also received the 2008 ASCE Collingwood Prize, 2009 ASCE Arthur M. Wellington Prize, and Dwight David Eisenhower Graduate Research Fellowship from FHWA in 2003 and 2004.