About Chul Min Yeum

2018 — **Assistant Professor**

Civil Engineering
University of Waterloo, Canada

2016-2018 — **Postdoctoral Research**

Civil Engineering
Purdue University, United States

2012-2016 — **Doctoral Degree**

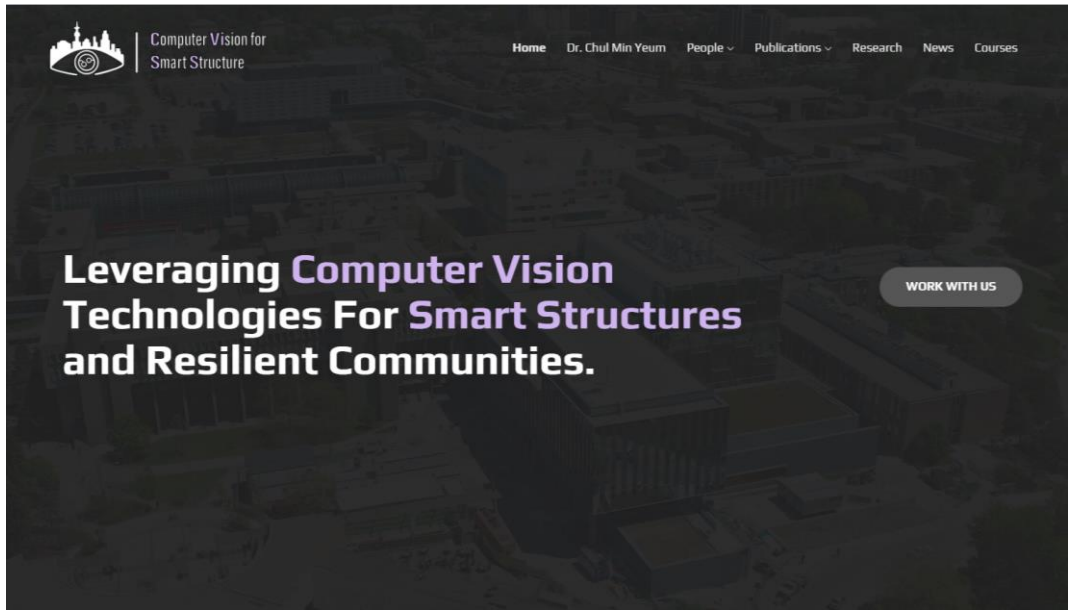
Civil Engineering
Purdue University, United States

2008-2010 — **Master's Degree**

Civil Engineering
Korea Advanced Institute of Science and Technology, South Korea

2002-2008 — **Bachelor's Degree**

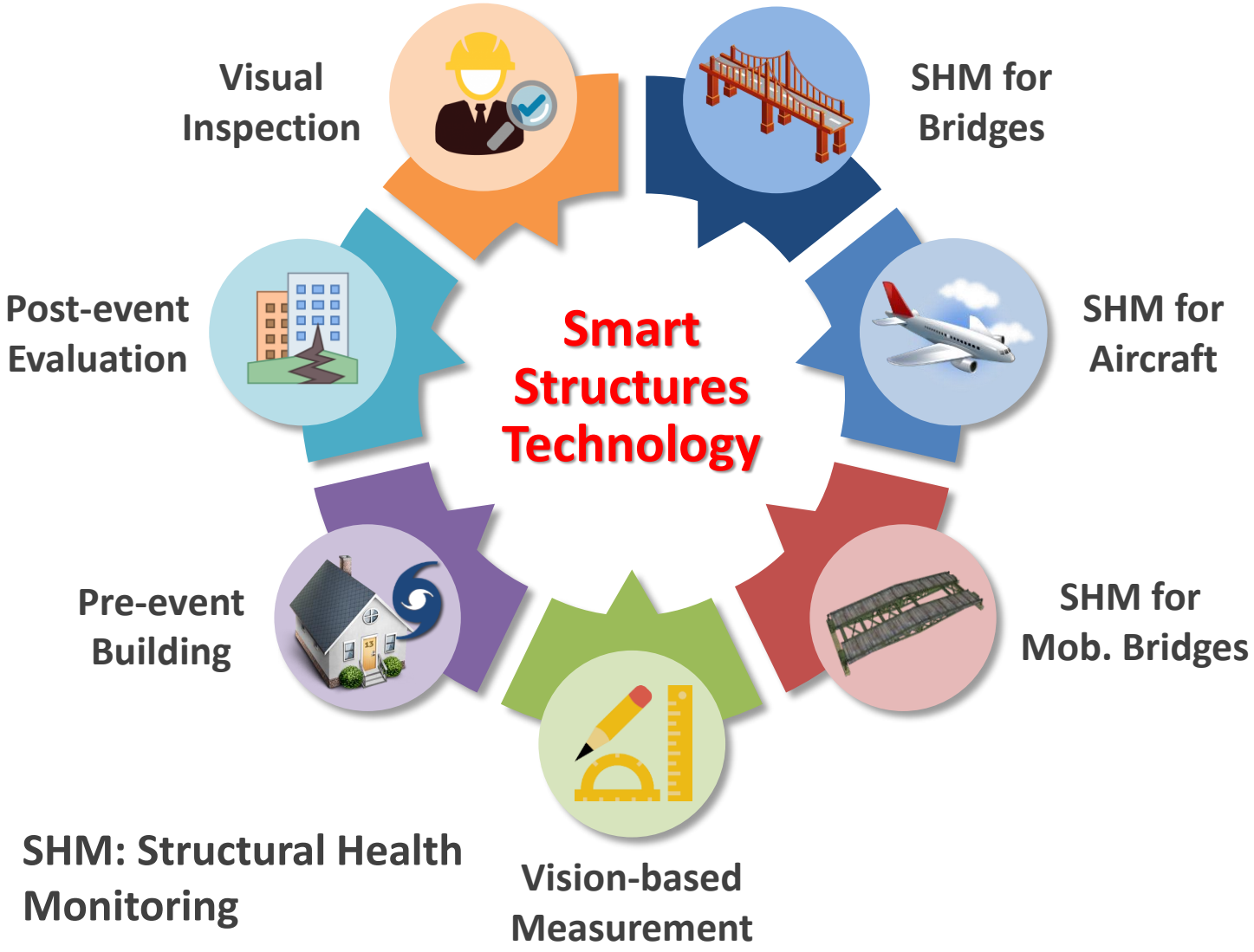
Civil Engineering
Korea Advanced Institute of Science and Technology, South Korea



www.cviss.net

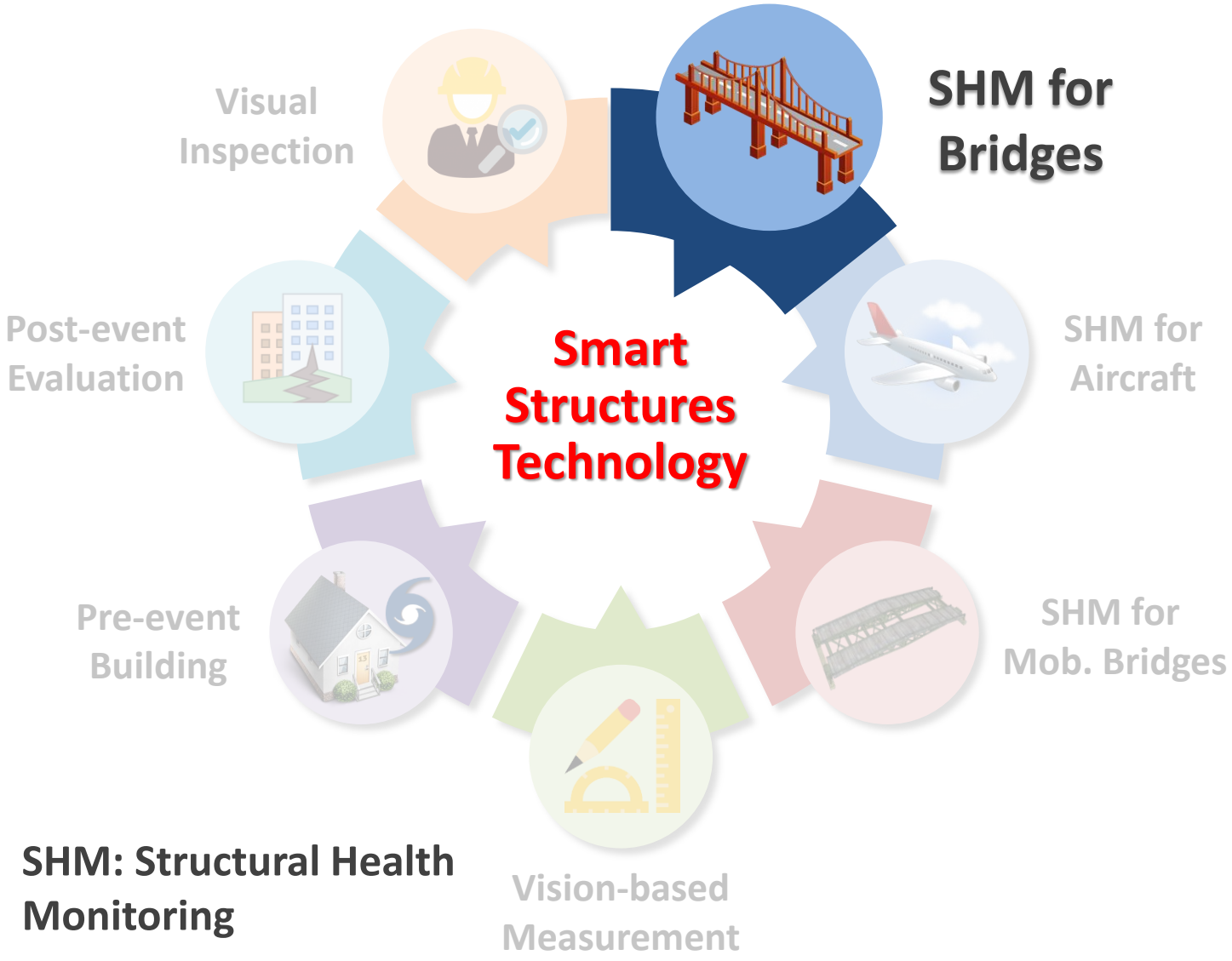
About the Purdue University

Summary of Previous Research



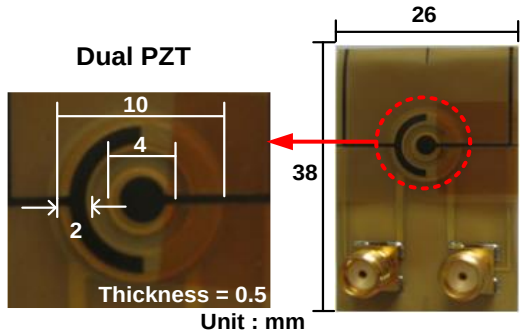
SHM: Structural Health Monitoring

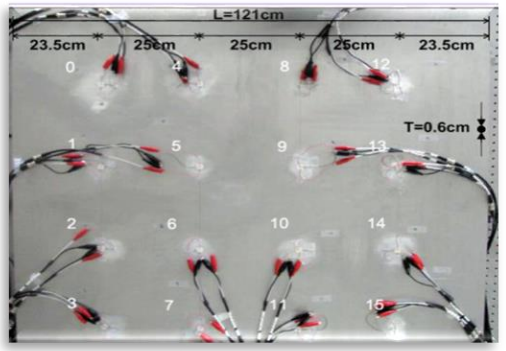
Summary of Previous Research: Nondestructive Testing for Bridges



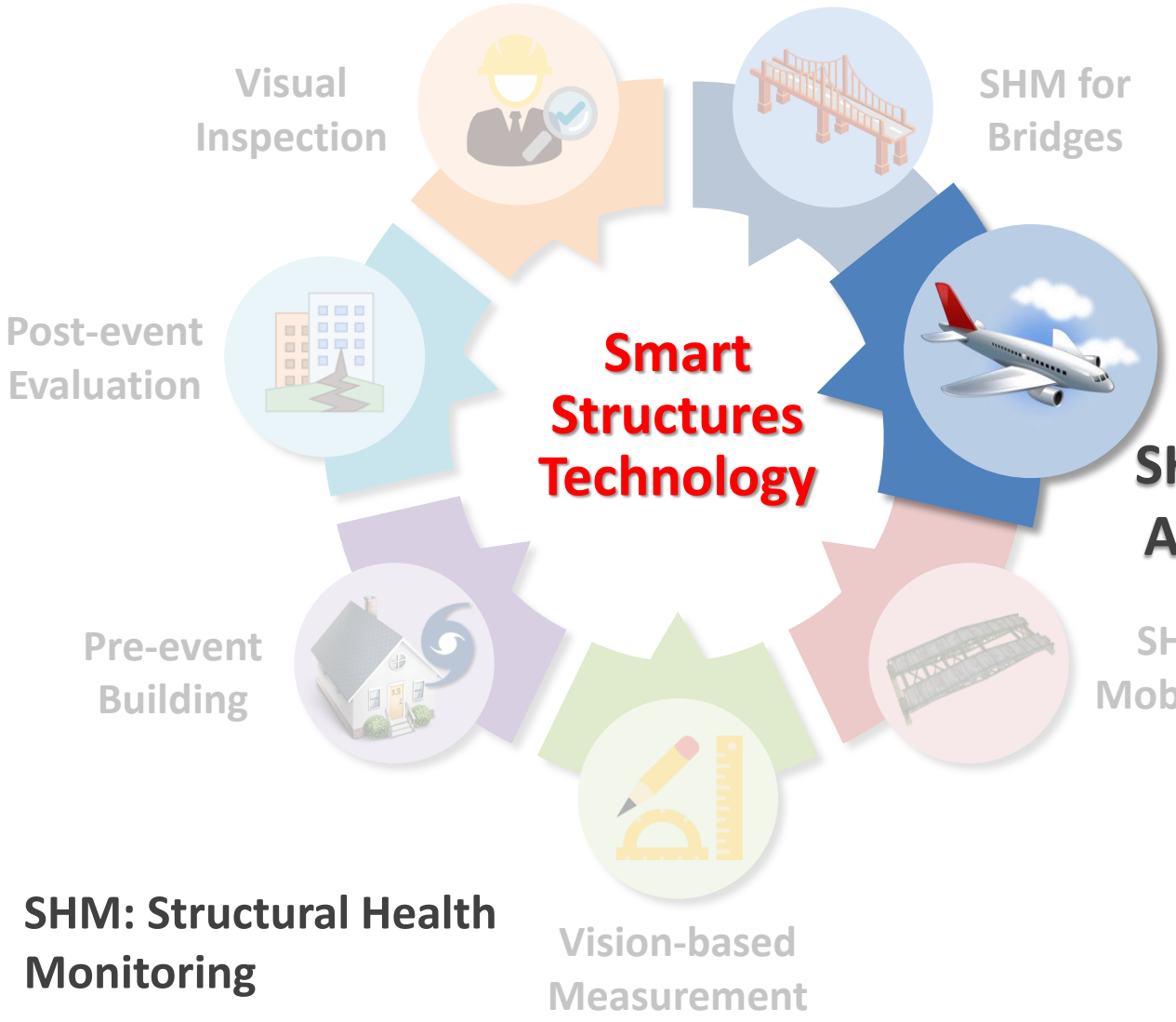
SHM: Structural Health Monitoring

Instantaneous crack diagnosis system for bridge monitoring



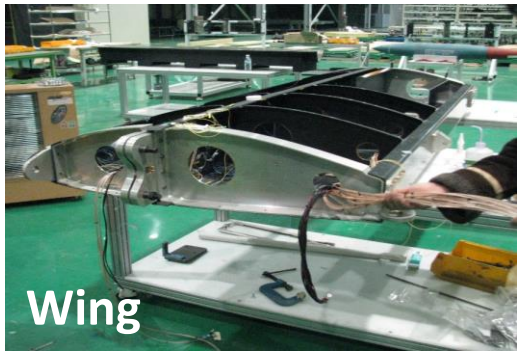


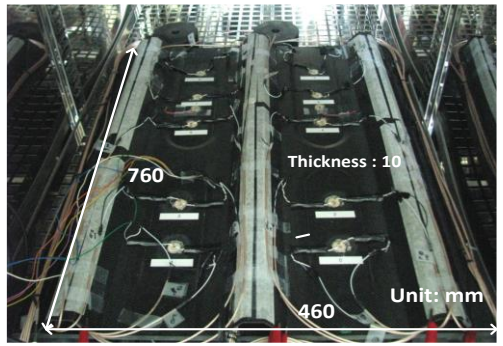
Summary of Previous Research: SHM for Composite Air Vehicles



SHM: Structural Health Monitoring

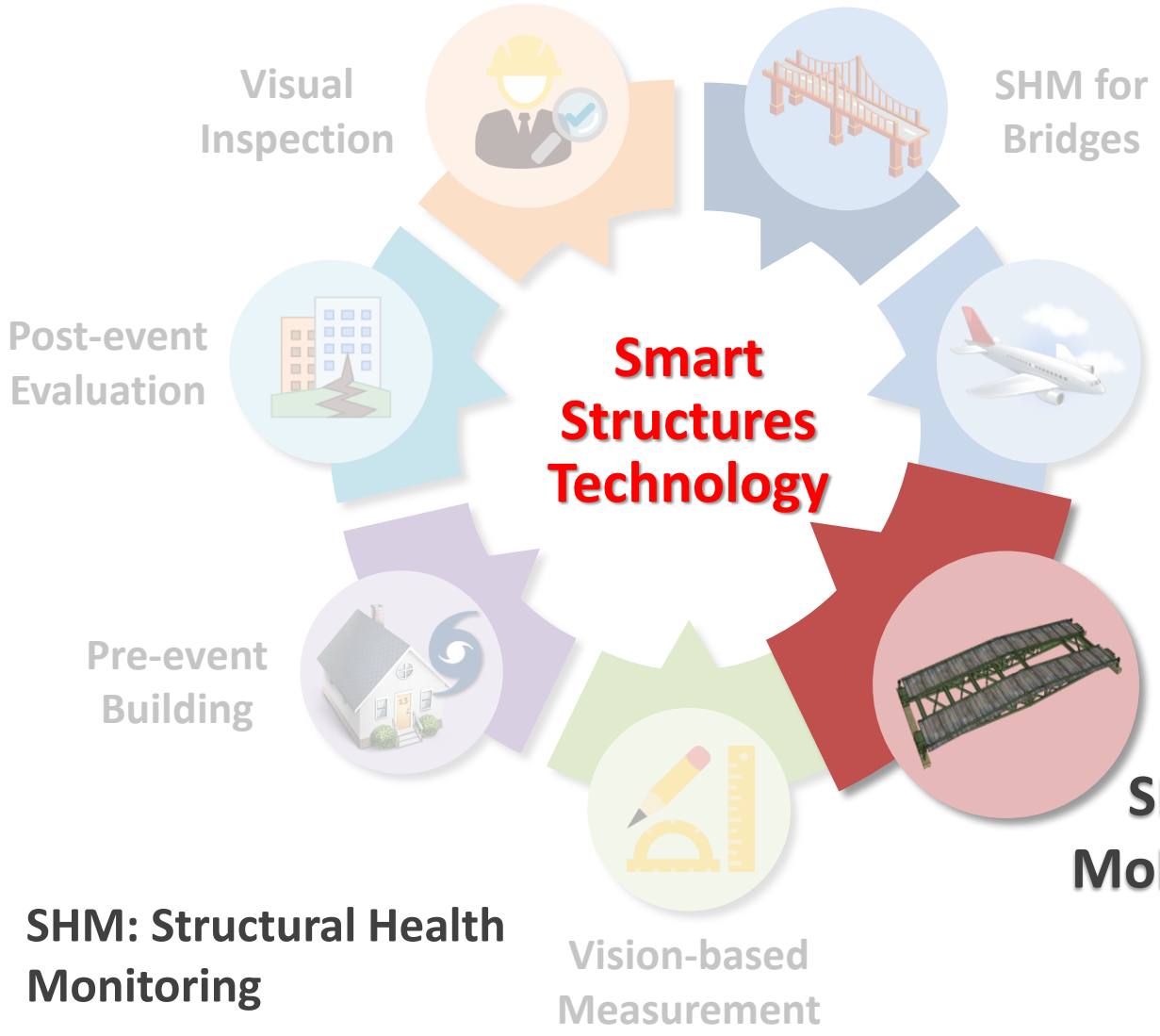
On-board SHM technology for composite air vehicles





BOEING

Summary of Previous Research: Mobile Bridge Usage Monitoring

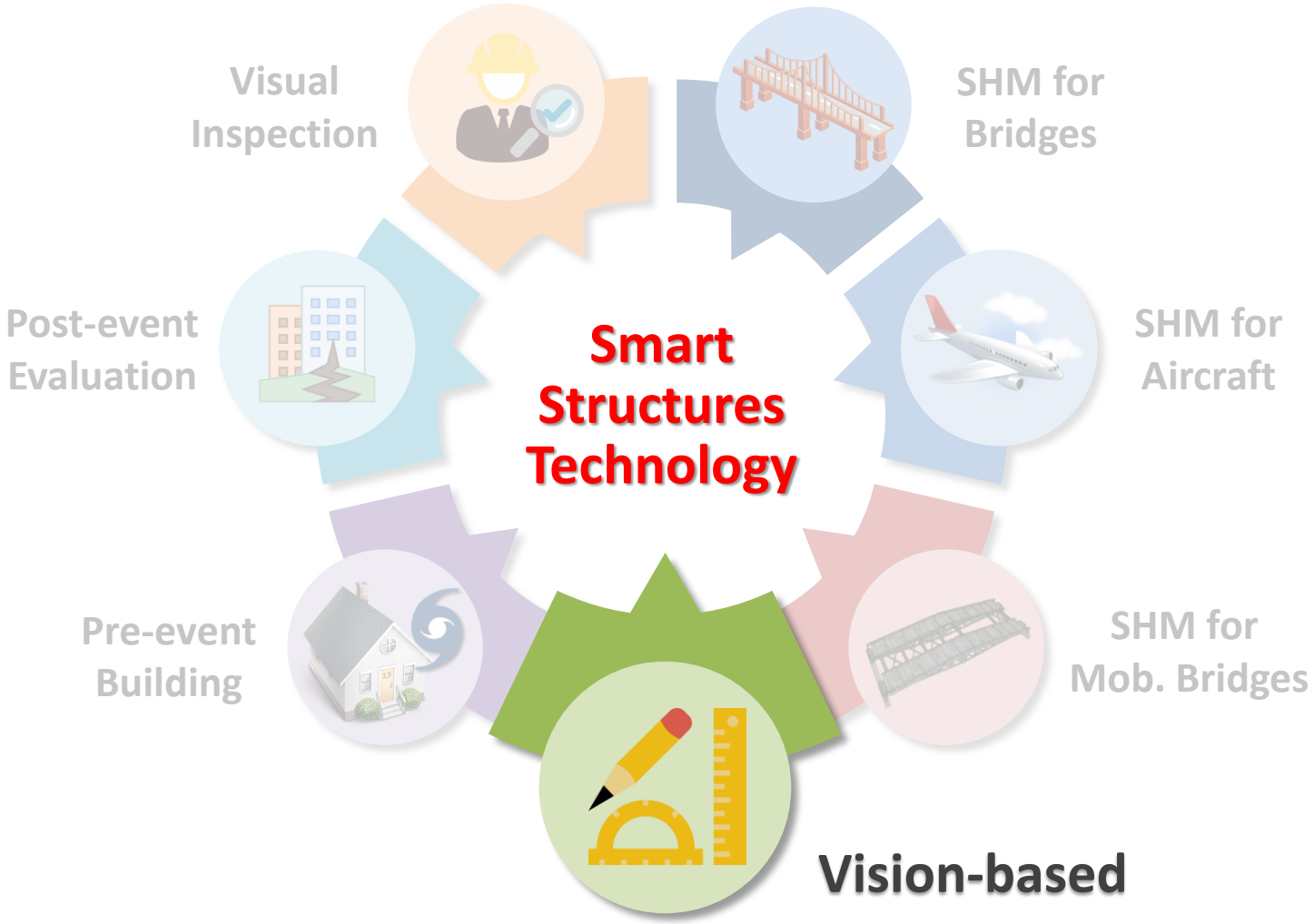


SHM: Structural Health Monitoring

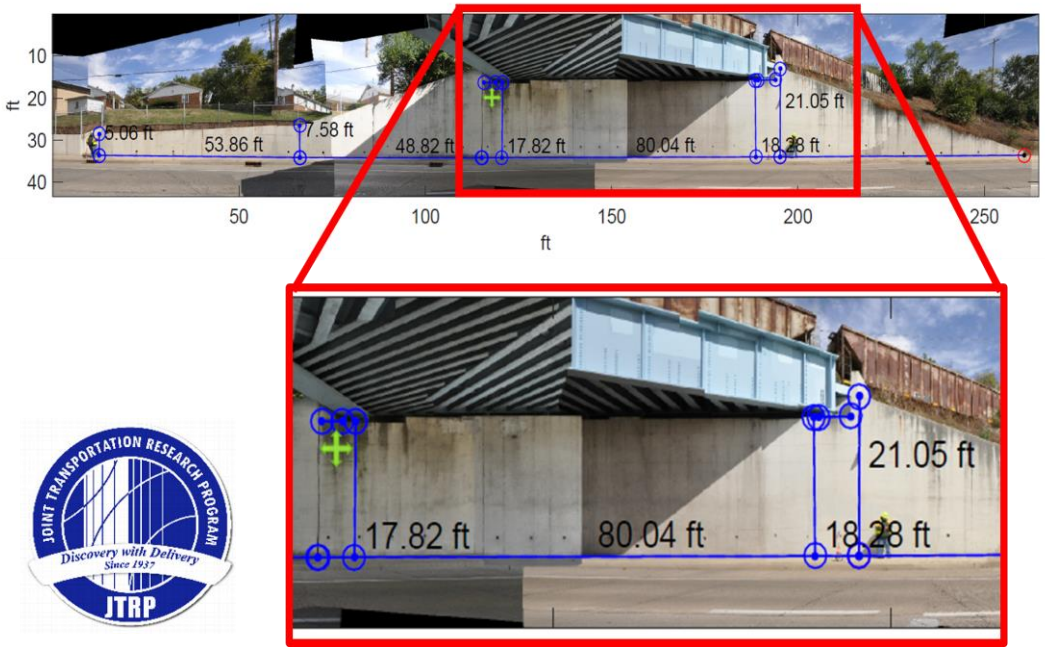
SHM for Mob. Bridges

Mobile military bridge monitoring system using sensor network

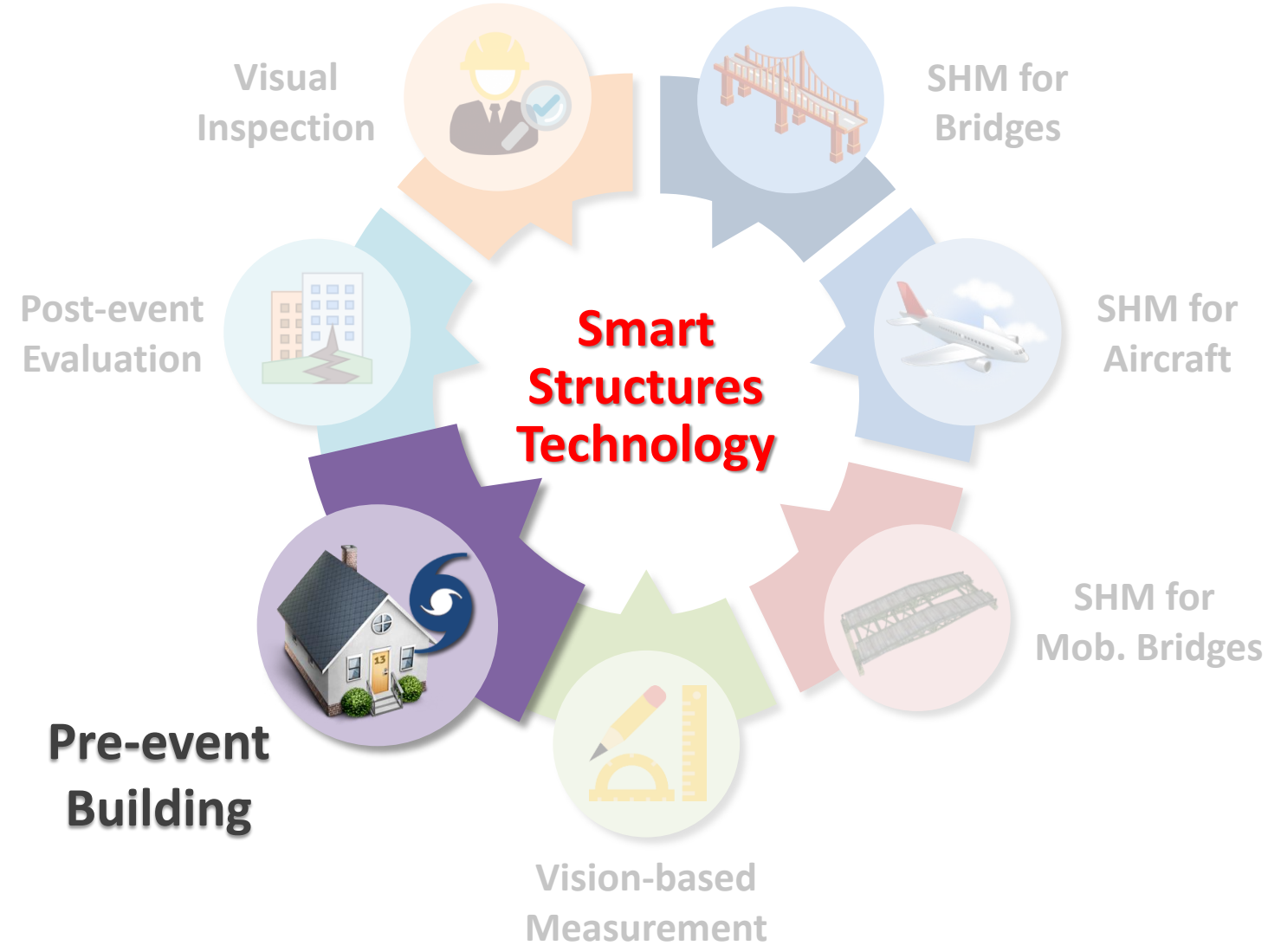
Summary of Previous Research: Vision-based Measurement



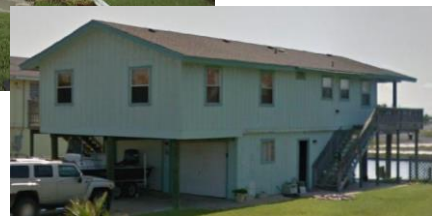
Vision-based meas. and documentation for construction pay items



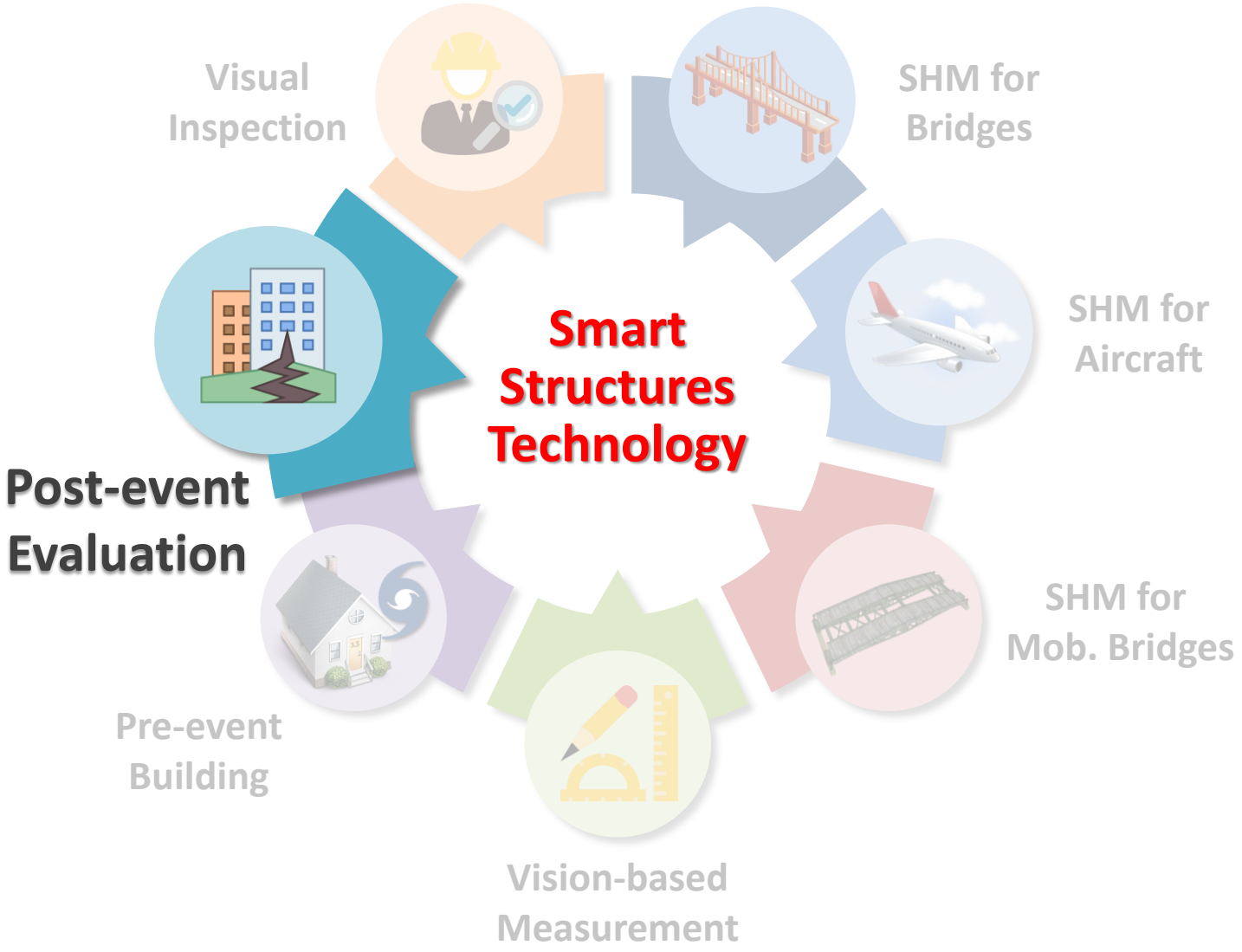
Summary of Previous Research: Building Image Detection from Street View



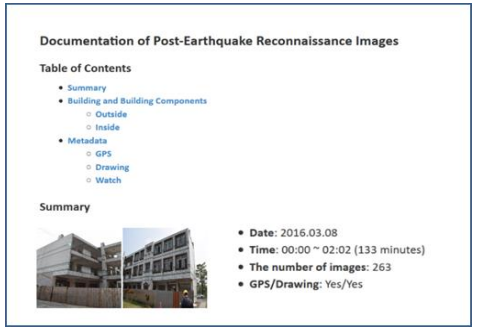
Automated pre-event building image extraction

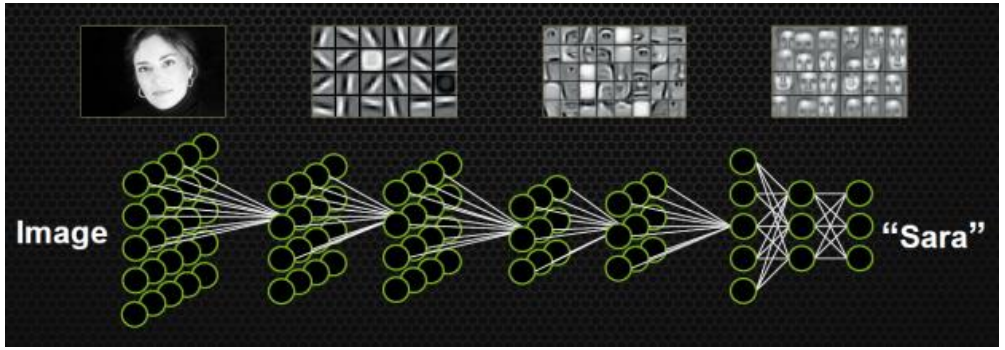


Summary of Previous Research: Post-disaster Building Evaluation

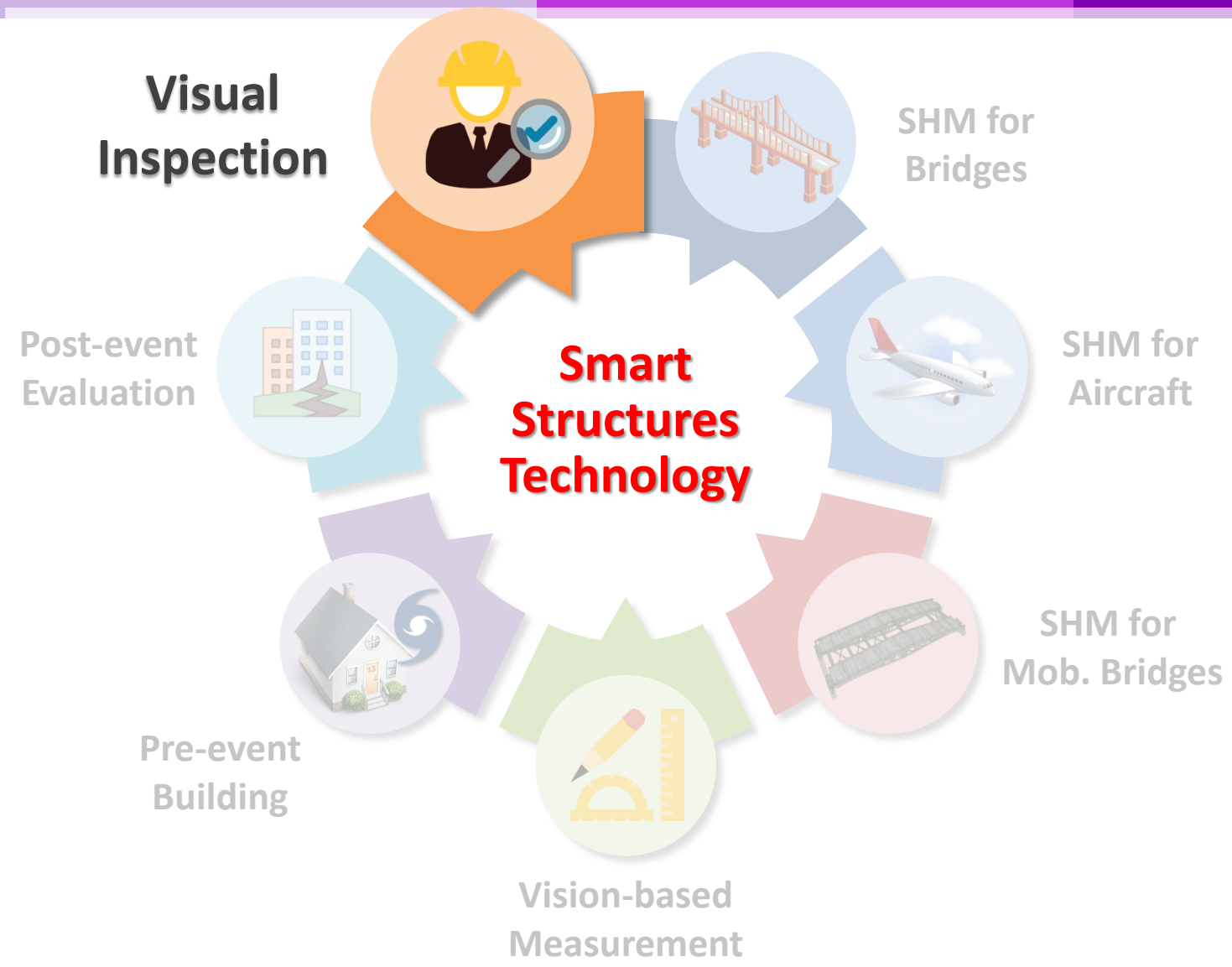


Post-disaster evaluation using visual data analysis

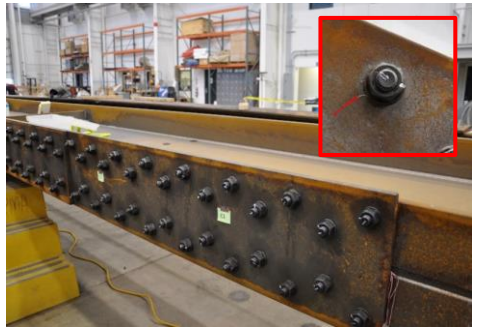




Summary of Previous Research: Automated Visual Inspection



Automated visual inspection for large-scale civil structures



AERIALTRONICS
REMOTELY PILOTED AIRCRAFT SYSTEMS

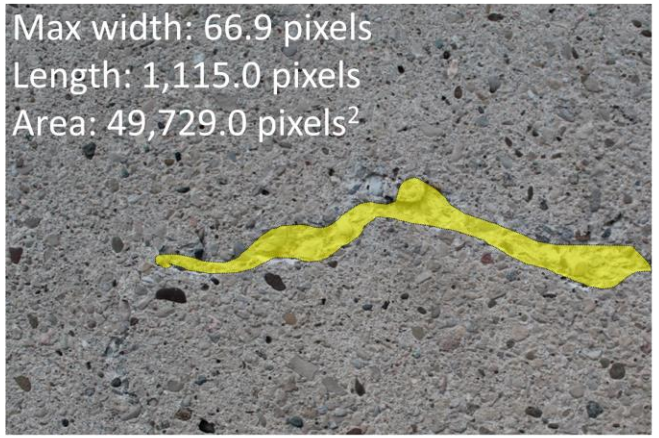
Image Scale Estimation for Quantitative Visual Inspection

Routine visual inspection is mandated to identify and quantify structural defects.

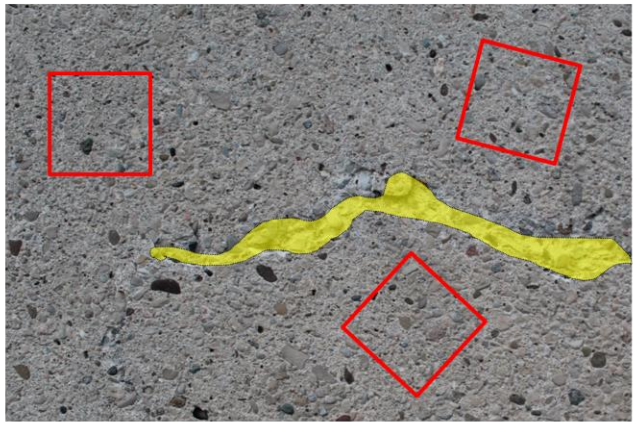
Technical Overview

Step 1. Image collection for target region

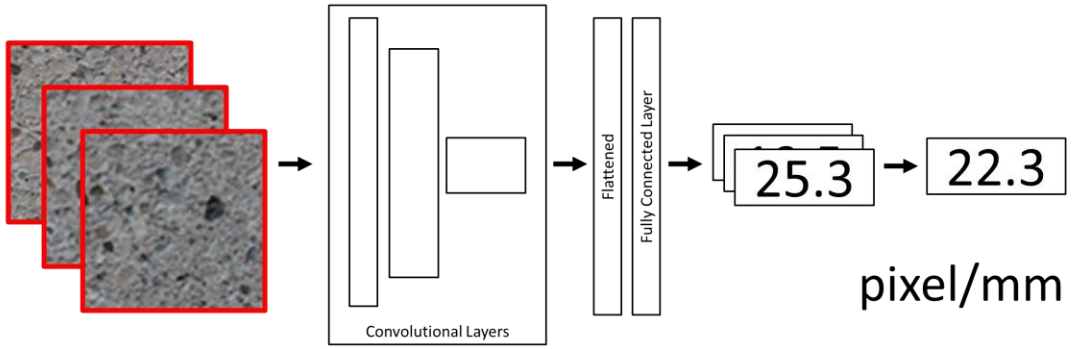
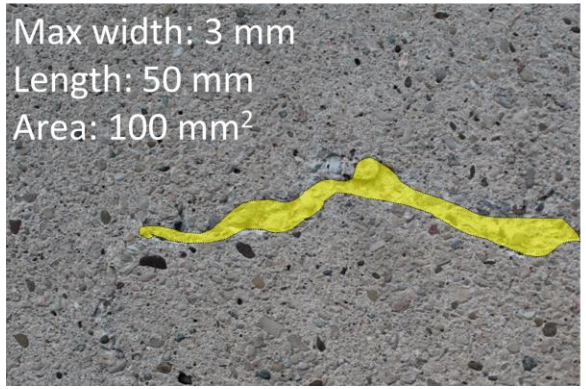
Step 2. Region-of-interest (ROI) detection



Step 3. Patch extraction of surface texture



Step 4. Image scale estimation using trained CNN model



Step 5. Quantitative ROI evaluation