National Institute of Justice

Award Title: Pediatric Fracture Printing: Creating a Science of Statistical Fracture Signature Analysis
Award Description: This research will address this significant gap in best practice through a multidisciplinary effort that: (1) continues the development of experimental data from an experimental animal model, to help correlate input forces and cranial fracture patterns; (2) develops a pattern recognition method for "fracture-printing" to be used in the identification of injury causation, initially based on this "ground truth" data from an animal model; and (3) collects data on human pediatric deaths involving blunt force cranial fracture and known impact scenarios from current forensic case files at medical examiner offices across the country to establish a database (The Pediatric Cranial Fracture Registry). This research will develop automated pattern recognition methods to classify cranial fracture patterns based on contact interface, impact energy, and head constraint condition based on subject age. The predictive analysis will use classification models that are generated using experimentally produced data (e.g. digital images of cranial fractures) and are accompanied with the ¿ground truth¿ data (i.e. contact interface, impact energy, and head constraint condition). The ultimate aim of this research will be that for a given cranial fracture pattern in a subject of a given age; the researchers will be able to compute a statistical probability that a particular impact condition was the cause. ca/ncf

Awardee Name: Michigan State University	**Award Number:** 2011-DN-BX-K540
Solicitation Title: NIJ FY 11 Applied Research and Development in Forensic Science for Criminal Justice Purposes	**Fiscal Year:** 2011
Amount: $681,147.00	**Earmark:** No
Recovery Act: No	**State/Territory:** MI
County: Ingham	**Congressional District:** 08
Award Status: Open	