



## Charcoal Identification System

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### The Invention

The present invention from UW-Madison and USDA Forest Service Forest Products Lab (FPL) researchers is an automated system for identifying the source of wood in a charcoal product. The inventors employed supervised machine learning methods to analyze digital images (currently captured with a modified XyloScope but in general it could be any imaging device with sufficient resolution and magnification, e.g. a modified cell phone) of the transverse/tangential/radial planes and compute a “signature” that encodes the discriminative anatomical features of the image or image patches. These signatures are then used by a classifier to predict the appropriate application-specific category (e.g. species or region of origin) for the image, and the operator is shown these predictions along with their confidences.

Development of this invention required modifying the lighting system of the XyloScope to improve the ability of the XyloScope to capture diagnostic structural features of the charcoal, but the modified XyloScope is not the invention.

#### Tech Fields

- [Research Tools : Detection](#)

For current licensing status, please contact Jennifer Gottwald at [jennifer@warf.org](mailto:jennifer@warf.org) or 608-960-9854