

## Technology Profile Fact Sheet

**Title:** Method of Modeling Single Class Data from Multi-class Data

**Aliases:** Automatic Methods For Improving Speaker Detection In Multi-Speaker Utterances

**Technical Challenge:** There are many instances in which data representing a target data class is contaminated by data belonging to non-target classes within the same category (e.g., speech, images, text). Building a purified statistical model for a target class in this situation is a very time-consuming manual effort, and there is a need to automatically separate target class data from the contaminating data representing other classes.

**Description:** This technology provides methods for automatically purifying a statistical model for a target data class, which has been trained from data representing both the target class and at least one other non-target class. As an example, the technology provides an algorithm for automatic purification of data used to train statistical models for speaker detection, when the available data for training a target speaker model is contaminated by utterances from at least one other non-target speaker. The algorithm automatically selects speech utterances attributable to a target speaker from the initial contaminated data. This function, previously requiring time-consuming manual effort, constitutes the chief advantage of the invention. Another advantage in certain applications involving Hidden Markov Models is that the purified models require less computer memory, which eliminates costly memory swapping. The algorithm is general, and may be applied to purify statistical models in areas besides speech processing, such as image and text processing.

**Demonstration Capability:** Computer code is available for demonstration.

**Potential Commercial Application(s):** This technology is useful in voice recognition, speech enhancement, and frequency monitoring applications.

**Patent Status:** A patent application has been filed with the USPTO.

**Reference Number:** 1340