

## Office of Technology Commercialization

### Title of Invention: Improving Java Virtual Machine Startup Performance

Technology ID: 09KU009L

**Non-Confidential Description:** Portability, ease of coding, maintainability, safety, and security make Java a highly popular programming language. A Java Virtual Machine (JVM) is used to provide portable and secure execution of Java programs on a variety of different hardware/software configurations. However, the JVM must first launch and then optimize code as it runs. This leads to slower startup times. To counteract this, the JVM compiles only the important, or hot, components. Hot components are determined by profiling past program behavior. If past behavior does not model future execution, the predictions will be incorrect. Furthermore, the current inefficient collection of profile information delays optimization and startup.

ITTC researchers are devising a new profiling strategy that will use program constructs called "loops" to predict future hot sections more quickly at startup.

**Applications:** The novel approach will help improve the startup performance of all Java applications, but will be particularly beneficial for interactive user interfaces, and other smaller applications such as those for cell phones and PDAs. In addition to Java applications, the technique can be applied to applications written for other managed platforms, such as Microsoft's CLR (part of the .Net framework).

**Benefits:** ITTC technologies aim to improve the startup performance of Java applications.

#### Patent Status:

#### License:

**Confidential Disclosure Agreement:** KU is willing to enter into a Confidential Disclosure Agreement for the purpose of negotiating a License Agreement. If you are interested in learning details of this invention, please contact:

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To education and train students for technology leadership;

To transfer knowledge and innovative technologies to Kansas companies and national industries;

By providing an excellent interdisciplinary research and development environment.

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