



Introduction

Name of Organization	LGS Innovations
Lead Investigator	Gerald R. Thompson
Current Team Members	No others at this time



Research Areas of Interest

- Software Diversity
 - Automatic modification of program source code intermediate code, or executable code.
- Static Analysis
 - Automatic detection of design and implementation flaws, including non-adherence to security policy.
- Dynamic Monitoring
 - Automatic tracking of user, role, privilege, permission, control and data flow to restrict control and data flow.



Unique

Qualifications & Capabilities

LGS has conducted DTO/IARPA-sponsored software diversity research for information operations and information assurance since 2003.

Code Shuffling for Signature Diffusion (Neal Jenkins, COTR)

- Topological Sorting of Hierarchical Partial Orders
 - Data-flow analytic approach to software diversity.
 - Performs dependency analysis on C source code. Includes pointer analysis and structure member disambiguation.

Software Diversity for Vulnerability Mitigation (Carl Landwehr, COTR)

- Context-Free Grammar Transformations
 - Language-theoretic approach to software diversity.
 - Randomizes the decomposition of a program into functions.
 - Randomizes program stack layout.
 - Randomizes variable and parameter ordering.



Teaming Opportunity

We are looking to create or join a team to build a better integrated solution for software security:

- **We Are Seeking**

- Static analysis of source code and executable code to discover weaknesses.
- Program instrumentation to confine the effects of identified weaknesses.

- **We Will Provide**

- Diversification of software components so that residual vulnerabilities will be more difficult for attackers to discover or exploit.



Contact Information

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