GRAMMATECH

- GrammaTech, Inc.
- Lead Investigator: Tim Teitelbaum
- Current Team Members:
  - GrammaTech:
    - Drs. Paul Anderson, Denis Gopan, Alexey Loginov, Michael McDougall, David Melski, Tim Teitelbaum, Suan Yong; staff software engineers
  - University of Wisconsin (Madison)
    - Profs. Thomas Reps and Susan Horwitz; students

- We have developed many tools and techniques for code analysis, confinement, and diversification
- We wish to study
    - Integration of analyses
        - E.g., combination of static and concolic analysis to minimize false positives and negatives
    - Integration of analyses and mitigations
        - E.g., introduction of program shepherding to detect problems not detected by analyses

- Analysis of Source and Machine Code
  - **CodeSurfer**: Infrastructure for deep static analysis (C,C++,x86, …)
  - **CodeSonar**: Bug and vulnerability analysis (C,C++,x86, …)
  - **Concolic Execution**: Whitebox test-case generation for executables
  - **TSL**: Generation of retargetable machine-code analyses

- Confinement
  - **gtSDT**: Software Dynamic Translation
  - **DARE**: Partitioning into SW/HW components
  - **Covert Loading**: Techniques to secure software initialization

- Diversification
  - **DARE**: Rewriting of executables for obfuscation or variation

- Application / validation partner
  - Organization with extensive experience with IC and/or DoD applications

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