**CSFV**

**University of Washington**

**Monthly Technical Report for December, 2012**

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Project Title: Verigames

Contract Number: FA8750-12-C-0174

Program Manager: Dr. Drew Dean, DARPA I2O

Submitted by:

Michael Ernst / Zoran Popović

Computer Science & Engineering

University of Washington

AC101 Paul G. Allen Center, Box 352350

185 Stevens Way

Seattle WA 98195-2350

Fax: (206) 543-2969

E-mail: {mernst, zoran}@cs.washington.edu

**Distribution List**

DARPA/I2O

ATTN: Drew Dean

team-dean@darpa.mil

3701 North Fairfax Drive

Arlington VA 22203-1714

AFRL/RITA

ATTN: Dilia Rodriguez

Dilia.Rodriguez@rl.af.mil

525 Brooks Road

Rome NY 13441-4505

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# Verigames - Project Progress

**1. Expected Progress This Month**

* Support the new class file format in Java 8.
* Get cast/receiver insertions with multiple annotations working. Get inner type annotations with casts/receivers working.
* Continue integrating the new dataflow framework into Verigames.
* Introduce the idea of game “sessions” into the game in order to handle multiple levels served from the integrator.
* Begin thinking about how the game handles (visualizes) very large input programs.
* Begin creating art for the next visual metaphor for the game.
* Create a “first pass” tutorial sequence with simple programs in order to introduce players to the concepts of the game.
* Continue hiring.

**2. Accomplishments This Month**

We created first pass tutorial sequence to introduce players to the concepts of the game. The tutorial section will be an important part of teaching players how to play the game and will be required before any semi-formal or formal playtesting can begin. Eventually, we envision tutorials messages occurring “in-line” with gameplay, but this version at least allows us to place the game online once we have IRB approval.

We explored alternate pipe-influenced designs to solve for problems of representing a large number of variables and the potential of secondary type systems. We also explored a non-pipe-centric visual interpretation of levels, which allows us to get more information on a single screen, but which has the disadvantage of making buzzsaw placement less precise. We will need to continue to think about these trade-offs as we move forward on the Game Solver.

We began the integration of a new graphics library (the open-source Starling Framework) to improve performance and, eventually, to support play on mobile devices. We believe that integration will be complete next month.

We have added more checks on the Translation side to catch board/subboard inconsistencies, however, board and subboard ports are still not completely consistent. We will address this in the coming months.

The AFU now correctly handles inserting annotations to bytecode and extracting annotations from bytecode. We fixed several errors such as incorrect sizes and ordering when reading and writing bytecode.

We discussed potential changes to the Verigames XML file. This issue arose because the XML file will need to have enough information to insert casts depending on where buzzsaws are placed. We also talked about what we would need to store all of the information necessary to insert casts and add/remove/change annotations in the XML file. Currently, we store some information in a separate file. This is an ongoing design issue.

Clarification and bug fixing in the new class file format for Java 8.

**3. Deliverables Submitted**

N/A

**4. Publications Made**

N/A

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**5. Meetings**

* Weekly UW Verigames team meeting

**6. Issues or Concerns**

Iterative game development cannot start until our IRB is approved. Our game design and development process is highly reliant on gathering data from real players and making adjustments to the game based on perceived patterns of play. Our inability to collect and study data in the short term means that there are a number of game design questions that will remain open for the time being.

**7. Plans for Next Month:**

* Get the insert annotations to source part of the AFU working for changes to the bytecode.
* Start working on updating AFU with new compound type representation (this will also fix some bugs in AFU's current handling of compound types).
* Work on the translation of the divide by zero type system output into game level data.
* Continue working through bugs and other issues as Verigames ingests larger software programs.
* Continue integrating the dataflow framework into Verigames.
* Finish integrating new graphics library to improve performance and support mobile platforms.
* Oracle is planning to push our Java 8 changes from a special OpenJDK “type annotations branch” to the main branch on January 22.
* Continue hiring.

**8. Financial Summary**

December: Projected expenditures for the month were estimated at $110k. Actual expenditures were $63k. The Julia Srl invoice did not clear payables in time to post in December, most likely due to reduced staff across campus over the holidays. Software engineer Suzanne Millstein began work in January.