

Graduate Term Paper Requirements

Includes Web page requirements for Undergraduate and Graduate

Provide a one-page proposal based on the outline below. Try to follow that basic format (see the web page for the documentation standards). You need to have your proposal completed by Week 6 (end of the week). You will need to hand in a write-up which will be due in Week 13 (beginning of the week). The length is your choice but again, a write-up that is too superficial as compared to one that is comprehensive will not receive as much credit.

Outline for your project paper should be something like (see the evaluation form):

1. Problem Definition (e.g., FM / topic chosen and its applicability or rationale for your choice).
2. Known Solutions (e.g., Other appropriate FMs w/in the domain).
3. Motivation (e.g., Why is this an important problem and why are known solutions insufficient).
4. Discussion:
 - Definition and features of the FM
 - Features of the domain where this FM is applicable
 - Examples of how the FM is applied
5. Results (if any) from any experiments.
6. Conclusions (assess the applicability of the FM and/or the results).

Some possible topic areas include the following:

- Gaining assurance with Formal Methods
- Case Studies of Industrial Strength Usage of Formal Methods
- SES Workbench: Using Discrete Event Simulation (DES) for analysis of highly complex systems (when analytical methods are intractable)
- Promela/SPIN
- Modeling with Stochastic Petri Nets
- Formal Methods for Real-Time Computing
- Concurrent Systems: Formal Development in CSP (Communicating Sequential Processes)

Web based Formal Methods Information Resource Links (undergraduates must participate)

We will be creating a homepage using the theme Specification Modeling and Analysis for software and systems. **Due for completion in Week 11.** As a guide try to stick with the following sub-topics (see <http://www.eecs.wsu.edu/~cs980>):

- Formal Languages (algebraic sequential/concurrent, Model-based sequential/concurrent)
- Tools which support formal specification, verification and validation
- Stochastic approaches
- Proof of Correctness (logical, timing)
- Model checking (e.g., Promela/SPIN)
- Graphical/visualization of systems models
- Code synthesis