C00 – Organization

Program Verification

FMI · Denisa Diaconescu · Spring 2022

Course details

- Denisa Diaconescu
  - `https://cs.unibuc.ro/~ddiaconescu/`
  - denisa.diaconescu [at] gmail.com
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- Webpage of the course
  - Moodle (Contact me if you need access)
  - Handouts `https://bit.ly/3sBwYdo`
- Microsoft Teams channel for teaching

Bibliography

- *Logic in Computer Science: Modeling and Reasoning about Systems*, 2nd edition, Michael Huth, Mark Ryan, Cambridge University Press, 2004.
- *Model Checking*, Edmund M. Clarke, O. Grumberg, Doron A. Peled, MIT Press, 2000.
- *Systems and Software Verification: Model-Checking Techniques and Tools*, B. Berard, M. Bidoit, A. Finkel, F. Laroussinie, A. Petit, L. Petrucci, P. Schnoebelen, Springer, 2001.
- *Practical Foundations for Programming Languages*, 2nd edition, Robert Harper, Cambridge University Press, 2016.
- *Verification of Sequential and Concurrent Programs*, 3rd edition, Krzysztof R. Apt, Frank S. de Boer, Ernst-Rüdiger Olderog, Springer, 2009.

Grading

Default	:	10 points
Theoretical Exam	:	60 points
Project	:	30 points
Maximum Grade	:	100 points
Minimum Passing Grade	:	50 points

*A bonus of 30 points can be awarded for certain projects (stay tuned)

Exam: 60 points

- 1 hour exam
- Online on Moodle
- All materials at hand
- Exercises resembling the examples from the lecture notes/quiz

Project: 30 points (+ potentially 30 points bonus)

You will hunt bugs
applying existing verification tools on open-source projects.

Choosing the Project. Deadline: The 10th of April

- Choose an open-source project from GitHub.
  - It should have at least 1000 stars, but special cases can be discussed.
  - The project programming language is not important (as long as you can verify it!)
- Post a message in the project-chosing forum on Moodle containing (more details will be given)
  - Name and link of the project
  - Name and link of the verification tool
- We will work on the principle "first come, first served"
  - There will not be projects using the same open-source repository.

Work on the Project

- Run a verification tool on the project and make sure you find bugs.
- If you didn't find any bug, look for a different project or tool.
- Write a report describing the experience and present it

Complete the Project.Deadline: The 8th of May

The project report (20p)

- an overview of the open-source repository
- an overview of the verification tool used and how to use it
- presentation of the bugs found and suggestions to fix them
- max 10 pag
- submit the document containing the report using the corresponding Project submission assignment on Moodle.

Presentation of the project (10p)

- 15 min presentation in which you will give on overview of the project, the verification tool used, and the bugs found.

Project: bonus

Bonus paths (only one applies)

30p If you submit a pull request that fixes one of the bugs presented in the project and it gets merged.

10p If you open an issue on the source-repository describing one of the bugs presented in the project, and it gets acknowledged.

Academic Dishonesty

Don't do it!