Static Program Analysis - Work Plan for Remote Teaching

DCC831 - Pós-Graduação em Ciência da Computação
DCC030 - Bacharelado em Ciência da Computação
DCC049 - Bacharelado em Sistemas de Informação

This course shall be given in English. Remote classes will consist of videos, posted at https://www.youtube.com/playlist?list=PLC-dUCVQghfdu7AG5f_p4oRyKgjDuoAWU, plus exercises at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/ementa.

Exercises must be turned in via email to the course instructor (fernando@dcc.ufmg.br), every Tuesday, no later than 5:00pm. Exercises can be typed, or handwritten. In the latter case, a photograph of the answers must be sent. The course contains a few synchronous Q&A meetings, always via Google Meet (Links shall be added to the calendar events). Questions shall be answered in these meetings. Written questions (asynchronous questions) can be posted as comments under the corresponding video, in the youtube website, or posted in the discussion list: dcc888@googlegroups.com. The full syllabus is available at the course website, together with links to videos (https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/).

Office hours can be scheduled with the course instructor, always on Tuesdays, between 5-5:50pm (BRT). To schedule an appointment, send an email to the course instructor.

There will be 5.0 extra points that shall be distributed to students who comment on videos or answer questions in the discussion list. Each comment or answer is worth 0.5 points. Questions do not count towards extra points. The schedule follows below:

Class	Date	Subject Covered in the **First** Part of the Course	Format
1	May 18th	Introduction meet.google.com/amc-vihu-qhp	**Sync**
2	May 20th	Control flow graphs	Async
3	May 25th	Dataflow analyses	Async
4	May 27th	Algorithms to solve dataflow analyses	Async
5	Jun 1st	Lattice theory	Async
6	Jun 8th	Partial redundancy elimination	Async
7	Jun 10th	Q&A meet.google.com/rof-ajwj-myh	**Sync**
8	Jun 15th	Constraint based analysis	Async

9	Jun 17th	Pointer analysis	Async
10	Jun 22nd	Loop optimizations	Async
11	Jun 24th	Static single assignment form	Async
12	Aug 27th	Sparse abstract interpretation (Friday!)	Async
13	Jun 29th	Tainted flow analysis	Async
14	Jul 1st	Paper discussion meet.google.com/uwf-mirp-qfp	**Sync**
15	Jul 6th	Review class meet.google.com/mii-cqfa-maf	**Sync**
16	Jul 8th	Midterm exam	Async
Class	Date	Subject Covered in the **First** Part of the Course	Format
17	Jul 13th	Range analysis	Async
18	Jul 15th	Program slicing	Async
19	Jul 20th	Operational semantics	Async
20	Jul 22nd	Type systems	Async
21	Jul 27th	Mechanical validation of theorems with Twelf	Async
22	Jul 29th	Q&A meet.google.com/apz-izpp-uyc	**Sync**
23	Aug 3rd	Type inference	Async
24	Aug 5th	Just-in-time compilers	Async
25	Aug 10th	Register allocation	Async
26	Aug 12th	SSA-based register allocation	Async
27	Aug 17th	Divergence analysis	Async
28	Aug 19th	Paper discussion meet.google.com/keb-nupg-uyu	**Sync**
29	Aug 24th	Review class meet.google.com/gsw-ovor-qyo	**Sync**
30	Aug 26th	Final exam	Async

Links

On the exams: the two evaluations shall be performed asynchronously. Students will receive the exam at 5:00pm on the scheduled day, and will have 23:59:59 hours to email answers back to the instructor. Exams can be done in pairs. Examples of exams can be found at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/grading.html.

On the project assignment: the project assignment remains as defined at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/assignment/. Students can replace either the first and/or the second project with a research project. The contents of this project must be agreed with the course instructor.

On the weekly homeworks: homeworks are worth 1.0 points each, and are available at: https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/ementa/.

On the videos: Videos are available on youtube. Links can be found at: https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/ementa/.

On paper discussions: The course contains two paper-discussion sections. More about paper discussion can be found at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/discussion.html. Each discussion is worth 5.0 points.

On grading: Grades are available online, for students enrolled in the course, at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/grades/.

On the recommended bibliography: the course can be followed just with the slides; however, a number of books covering each subject is also available. Each set of slides contains, on its first page, the key material used to produce that class. The list of books used to prepare the material can be found at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/biblio.html.

On extra points: comments or answers (as youtube comments) are worth 0.5 points each. Students can also get extra points if they can reproduce previous research results. More about it can be found at https://homepages.dcc.ufmg.br/~fernando/classes/dcc888/grading.html.