CS 521/621
Paper Selection Assignment

Due: **Wednesday, February 22, 2017, 9:00 AM EST** via Moodle.
This assignment must be completed by every 521 and 621 student.

Below, you will find a list of papers. Each paper has a specific presentation day associated with it.

- Each **521** student (who does not elect to do a research project[1]), must sign up to present **two** papers.
- Each **621** student, must sign up to present **one** paper.

The paper presentations will be done in groups of **two** or **three** students. The groups will be determined by who signs up for each paper. (Thus, if it is very important to you to work with specific friend(s), coordinate signing up for the same paper with the friend(s).) To sign up, look for the **Paper Selection Assignment** on Moodle. Sign ups will open Friday, February 17, 9 AM EST and will be done on a first-come first-served basis.

Research paper list

There are 18 papers to be presented this semester. Each paper has a presentation date associated with it.

All paper presentations will be 20 minutes. Each paper has three slots for students to sign up for. Every paper will end up with a team of either **two** or **three** students to work as a team for the presentation. All presentations will be during regular class times. *You will be given more guidance later on how to present a paper.*

Choosing the papers can take a bit of time. To make the most well-educated choices, you should take at least a brief look at each paper and read its abstract. Each paper below includes a URL. Some papers are available for free, and others are available for free only to you as UMass students. On campus, or when connected via the UMass VPN, the links will just work. If you are off campus, you may access the papers for free by adding `.silk.library.umass.edu` to the end of the domain. For example, `http://dl.acm.org/citation.cfm?id=2491459` becomes `http://dl.acm.org.silk.library.umass.edu/citation.cfm?id=2491459`. (Note that the addition does not go to the end of the URL, but rather the end of the domain.) You will be asked to log in with your UMass credentials.

List of papers:

Presentation date: Thursday, March 2:

1. Automatic Patch Generation Learned from Human-Written Patches. By Dongsun Kim, Jaechang Nam, Jaewoo Song, and Sunghun Kim. ICSE 2013. `http://www.cse.ust.hk/~hunkim/papers/kim-icse2013.pdf`
2. Automatic Recovery from Runtime Failures. By Antonio Carzaniga, Alessandra Gorla, Andrea Mattavelli, Nicolo Perino, and Mauro Pezze. ICSE 2013. `http://dl.acm.org/citation.cfm?id=2486891`
3. Program Boosting: Program Synthesis via Crowd-Sourcing By Robert A Cochran, Loris D'Antoni, Benjamin Livshits, David Molnar, and Margus Veanes. POPL 2015. `https://www.microsoft.com/en-us/research/wp-content/uploads/2016/02/popl15paper45.pdf`

[1] 521 students who elect to do a research project must sign up to present **one** paper.

Presentation date: Tuesday, March 7:

4. SemFix: Program Repair via Semantic Analysis. By Hoang Duong Thien Nguyen, Dawei Qi, Abhik Roychoudhury, and Satish Chandra. ICSE 2013. http://www.comp.nus.edu.sg/~abhik/pdf/ICSE13-SEMFIX.pdf
5. DirectFix: Looking for Simple Program Repairs Sergey Mechtaev, Jooyong Yi, Abhik Roychoudhury, ICSE 2015 https://www.comp.nus.edu.sg/~abhik/pdf/ICSE15-directfix.pdf
6. Angelix: Scalable Multiline Program Patch Synthesis via Symbolic Analysis Sergey Mechtaev, Jooyong Yi, Abhik Roychoudhury, ICSE 2016 http://www.comp.nus.edu.sg/~abhik/pdf/ICSE16-angelix.pdf

Presentation date: Thursday, March 9:

7. Automatically Patching Errors in Deployed Software Jeff H. Perkins, Sunghun Kim, Sam Larsen, Saman Amarasinghe, Jonathan Bachrach, Michael Carbin, Carlos Pacheco, Frank Sherwood, Stelios Sidiroglou, Greg Sullivan, Weng-Fai Wong, Yoav Zibin, Michael D. Ernst, and Martin Rinard SOSP 2009 https://people.csail.mit.edu/stelios/papers/clearview.pdf
8. CodeHint: Dynamic and Interactive Synthesis of Code Snippets. By Joel Galenson, Philip Reames, Rastislav Bodik, Björn Hartmann, and Koushik Sen. ICSE 2014. https://jgalenson.github.io/papers/icse2014.pdf
9. Staged Program Repair with Condition Synthesis. By Fan Long and Martin Rinard. ESEC/FSE 2015. https://people.csail.mit.edu/rinard/paper/fse15.pdf

Presentation date: Thursday, March 23:

10. Automated testing with targeted event sequence generation. By Casper S. Jensen, Mukul R. Prasad, and Anders Moller. ISSTA 2013. http://dl.acm.org/citation.cfm?id=2483777
11. Checking App Behavior Against App Descriptions. By Alessandra Gorla, Ilaria Tavecchia, Florian Gross, and Andreas Zeller. ICSE 2014. http://www.st.cs.uni-saarland.de/chabada/CHABADA.pdf
12. Are Mutants a Valid Substitute for Real Faults in Software Testing? By Rene Just, Darioush Jalali, Laura Inozemtseva, Michael D. Ernst, Reid Holmes, Gordon Fraser. FSE 2014. https://homes.cs.washington.edu/~mernst/pubs/mutation-effectiveness-fse2014.pdf

Presentation date: Tuesday, March 28:

13. SPLat: Lightweight dynamic analysis for reducing combinatorics in testing configurable systems. By Chang Hwan Peter Kim, Darko Marinov, Sarfraz Khurshid, Don Batory, Sabrina Souto, Paulo Barros, and Marcelo D'Amorim. FSE 2013. http://dl.acm.org/citation.cfm?id=2491459
14. Automatic Error Elimination by Horizontal Code Transfer Across Multiple Applications. By Stelios Sidiroglou-Douskos, Eric Lahtinen, Fan Long, and Martin Rinard. PLDI 2015. https://people.csail.mit.edu/rinard/paper/pldi15.pdf
15. Modular and Verified Automatic Program Repair. By Francesco Logozzo and Thomas Ball. OOPSLA 2012. https://www.microsoft.com/en-us/research/wp-content/uploads/2012/10/res0099-logozzo.pdf

Presentation date: Thursday, March 30:

16. Refactoring with Synthesis. By Veselin Raychev, Max Schafer, Manu Sridharan, and Martin Vechev. OOPSLA 2013. http://researcher.watson.ibm.com/researcher/files/us-msridhar/OOPSLA13Refactoring.pdf
17. Making Offline Analyses Continuous. By Kvanç Muşlu, Yuriy Brun, Michael D. Ernst, and David Notkin. FSE 2013. http://cs.umass.edu/~brun/pubs/pubs/Muslu13fse.pdf
18. Using likely invariants for automated software fault localization. By Swarup Kumar Sahoo, John Criswell, Chase Geigle, and Vikram Adve. ASPLOS 2013. http://dl.acm.org/citation.cfm?id=2451131

Deliverables

Using the **Paper Selection Assignment** on Moodle, sign up to present one of the above papers. Sign ups will open Friday, February 17, 9 AM EST and will be done on a first-come first-served basis.