CSCI/CSIS 602
Research Paper 3
Assigned 29 October 2013
Paper Due 03 December (before class)
(Presentations will be given 10 December 2013)
Submission: http://www.dropitto.me/verdicchio
Password: **fall13**
Filename: 602-**Lastname-Paper3.XXX** (e.g. `603-Verdicchio-Paper3.docx`)
File Types: DOCX, DOC, PDF

You are expected to submit a well-cited manuscript free of typographical and formatting errors representative of your graduate-level academic capabilities. The ideal length is 5 pages of text formatted like this one (1-inch margins, 11pt font and 1.15" paragraph spacing), plus a bibliography and tables/graphics as needed. Shorter submissions must be justified. Longer ones may be have content after the fifth page ignored. Use library resources and campus Internet connections/proxies to access journal publications – Google Scholar is also extremely helpful for simple journal and conference proceedings searches. Plenty of useful resources are also in the provided reading list and paper archive.

- The prompts below are intended to seed your ideas. Two students selecting the same prompt will likely (and hopefully) turn in completely different papers. If you must ask for clarification and direction you may, but try to let the topic grow organically with your research.
- Submit your chosen topic, a general outline of what you intend to write and initial sources being considered to me by email on or before 08 November (5% of paper grade). You should take several days to complete this process – don't wait until the day it is due.
- Submit final version to the dropbox on or before 03 December (95% of grade)
- Please bring a hard copy to class if you can
- Late assignments cannot be accepted
- The entire paper is worth 15% of the semester grade
- You will be required to give a presentation (worth 5% of the semester grade) on 10 December.

TOPICS

1. Software reuse and the use of COTS software – Give a survey of the idea of using existing software in the creation of new software and discuss your thoughts. Discuss software/code reuse in general and specifically discuss COTS software. Cite at least one paper from the past decade, though seminal publications are encouraged as well. Case studies are encouraged.

2. Barry Boehm created the Constructive Cost Model, also known as COCOMO 81 and the current version, COCOMO II. COCOMO is used in software cost estimation. Give a history of its development and usage, including a case study or two. There are extensive papers and books to reference, as well as the COCOMO website, which you may cite if done carefully and specifically. If you choose this option, run a COCOMO analysis (there is a web tool) for some set of software you have access to – perhaps your semester project code. Summarize what you come up with.

3. The evolution of software engineering (including software project management) has many obvious ties to traditional/general project management and manufacturing. What are some obvious ideas borrowed by Software Engineering from traditional/general project management? What are some more subtle ones? What can Software Engineering, as a discipline, learn from traditional/general project management and do to improve? What can traditional/general project management learn from Software Engineering due to its unique application? This prompt is very open-ended and open to personal opinion but must be fact-rich and well-cited.

4. I have given a PDF of some lecture notes on software metrics, including coding, productivity, design, testing, maintainability and management. Choose four nontrivial metrics (either from these notes or from your own research). Describe the metrics, their origins, and their intentions. Then describe your perspective/opinion on whether or not you find them effective. Besides citing the origins of the metrics, case studies would be good to cite as well.

5. "CMMI (Capability Maturity Model Integration) is a process improvement approach that provides organizations with the essential elements of effective processes, which will improve their performance. CMMI-based process improvement includes identifying your organization's process strengths and weaknesses and making process changes to turn weaknesses into strengths." (from http://www.sei.cmu.edu/cmmi/) Give a report on CMMI, its origins, development, and current usage. Describe a case study or two in a way that demonstrates the benefits and requirements of CMMI. Offer your perspective on the concept. You may cite the CMMI website (specifics), but provide other references as well.

6. If you have an idea of something you'd like to write about, get it approved by me no later than 05 November 2013. Justify why these 5 prompts are not to your liking compared to what you want to do instead.