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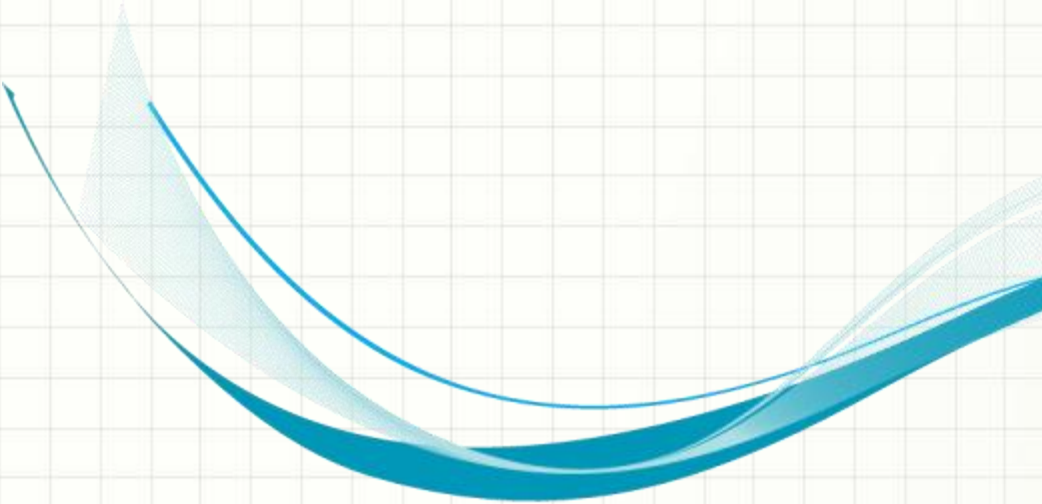
SOFTWARE QUALITY MANAGEMENT

CSP 587

Prof. Dennis Hood
Computer Science

Reading

- Artificial Intelligence – Trust but Verify
- Reading
 - [Blueprint for an AI Bill of Rights](#)
- Objectives
 - Discuss the growing dependence on AI
 - Revisit reactive QA (testing) w.r.t. AI-based systems
 - Revisit proactive QA
 - Planning
 - Modeling
 - Reusing
 - Self-discipline???
 - The role of government
 - Can anything save us now?



Week 14

Quality Assurance in an Artificially Intelligent World

Artificial Intelligence

- Not as intelligent as real intelligence
- We lack understanding of both
- Risk exposure is driven by usage:
 - AI-based processing
 - AI-based decision making

Reactive Testing of AI Systems

- Need a test case for every possibility (infinity?)
- Need time to execute every test case with every set of parameters
- Need a (safe) test environment which adequately mimics the real world
- Save time by using AI-based testing tools
 - Automated test tools
 - Intelligent selection of test cases and parameters based on most likely trouble spots

Proactive QA

- Reuse what we know works
- Plan carefully
- Develop and use experience
- Constrain the system's runtime opportunities

Rules and Regulations

- Government regulations
 - Require testing
 - Require training
 - Require insurance
- Laws and liability
 - Who or what is at fault?
 - Can fault be proven?
 - Can the perpetrator be held accountable? (robo-jails)

The Point of No Return

- How much time do we have left?
- Is it OK for individual countries to set their own laws?
- What must happen to get the AI systems to follow any laws?
- In case of emergency, hit the big red button (call the humans?)