

# Toward Software Engineering in Practice

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# Administrivia

Final Exam: Monday, May 6, 2019

5:30 p.m. to 8:30 p.m.

Review Session Saturday, May 4th, 1-3pm  
in NSH 3305

For full points, you should have Checkstyle  
and SpotBugs configured to run in your  
gradle build file.

**Software is Everywhere**  
**Software is Important**  
(duh)

# Mercedes uncovers bug that led to Melbourne defeat



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59,698  
VIEWS



Mercedes has discovered there was a computer bug in the software it uses at Formula 1 races, after concluding its investigation into what went wrong at the Australian Grand Prix.



# Healthcare.gov: Government IT Project Failure at its Finest



- The sheer number of vendors involved
- The unwillingness of key parties involved with the back-end to embrace transparency

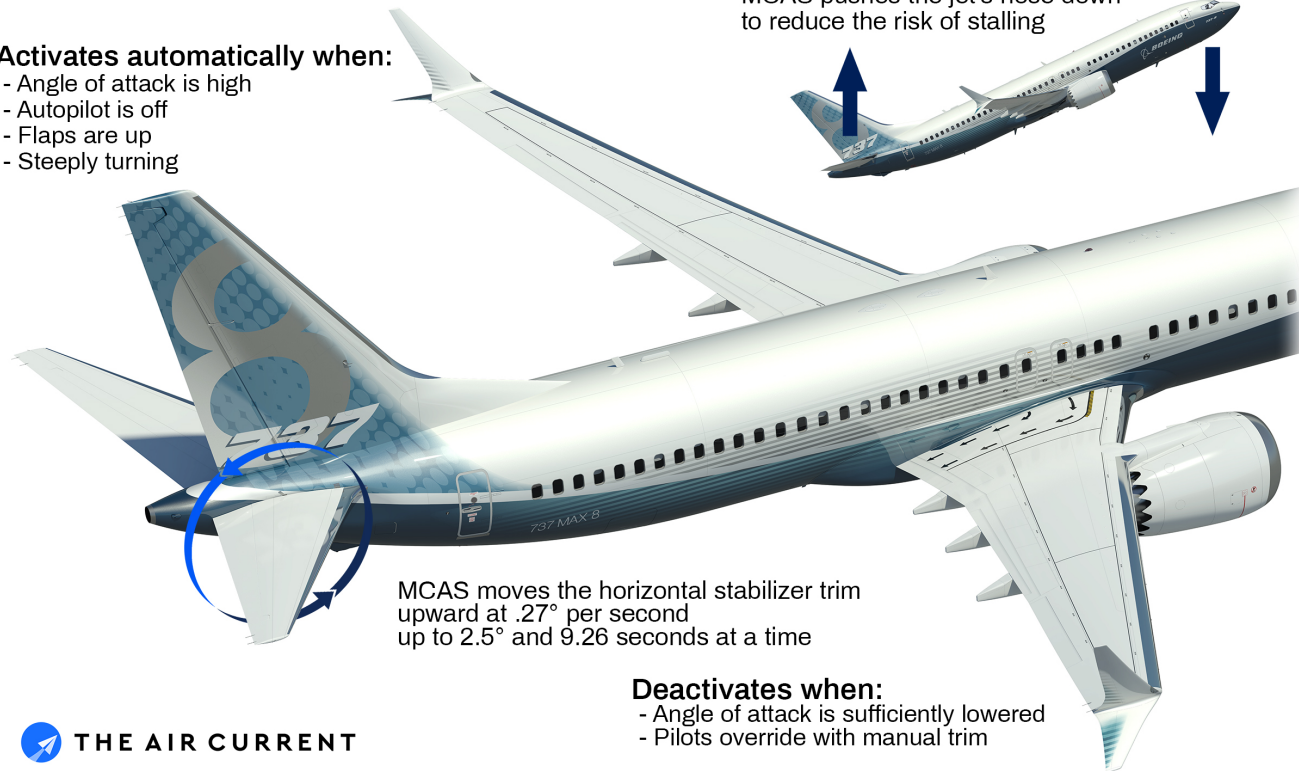
# Boeing 737 Max

## Boeing 737 Max Maneuvering Characteristics Augmentation System

### Activates automatically when:

- Angle of attack is high
- Autopilot is off
- Flaps are up
- Steeply turning

MCAS pushes the jet's nose down to reduce the risk of stalling



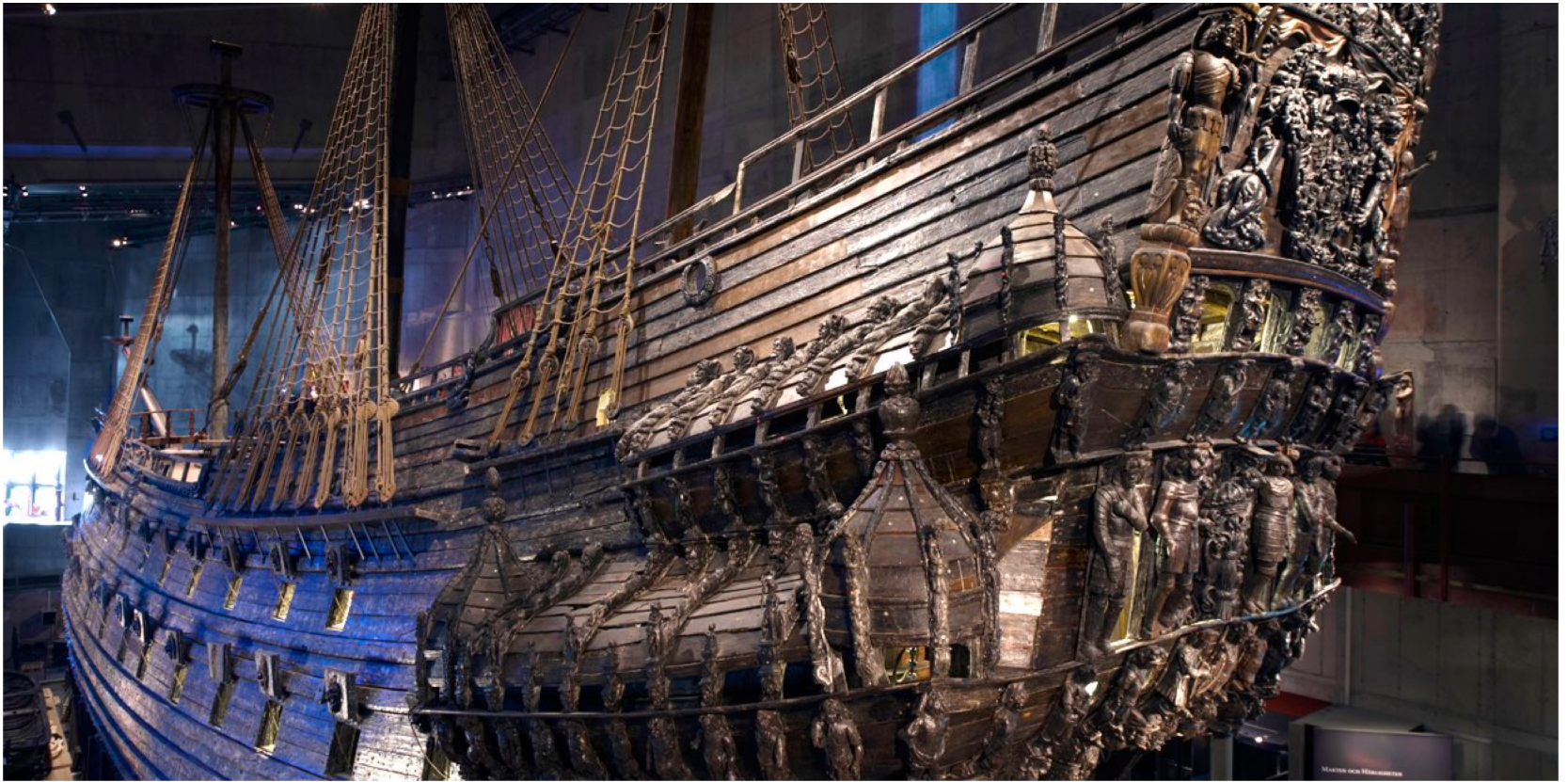
### Deactivates when:

- Angle of attack is sufficiently lowered
- Pilots override with manual trim

# Topics

- Software engineering as a human process
- Process
- Requirements
- Measurement
- Quality, incl. Security
- Time and team management
- Economics
- Strategic thinking about software
- Ethics

# Vasa





# Vasa



# What happened?

- Changing shipbuilding orders
- No specifications for modified keel
- Shifting armaments requirements
- Shipwright's death **teams**
- No way to calculate stability, stiffness, or sailing characteristics **measurement**
- Failed pre-launch stability tests **QA**

# Prerequisites

- Assumes working knowledge of popular programming language
- Assumes experience with team-based software development in medium-sized projects (e.g., Scrabble)
- vs 17-214
  - 313 largely focused on human issues and quality beyond functional correctness
  - 313 focused on larger scale

# SE minor/Concentration

- 17-214 DONE!
- 17-313 Foundations of Software Engineering
- 17-413 Software Engineering Practicum
- 3 electives (2 for Concentration)
- Internship



# Guest Speaker

