



CSCI 101

Connecting with Computer Science

Research Project Kickstart



Jetic Gū
2020 Fall Semester (S3)

Overview

- Focus: Computing Science in Production
- Architecture: von Neumann
- Readings: None
- Core Ideas:
 1. Objective & Schedule
 2. Topics
 3. Grading Criteria

Objectives & Schedule

Aha!

Objectives

- Conduct research on a topic related to computer science
 - Gain more in-depth knowledge about specific topics in Computer Science
 - Learn how to utilise the internet to perform research
 - Present findings in a professional manner using computers, including creating slides, etc.
- Learn how to utilise LaTeX to write essays, write equations, etc.

Schedule

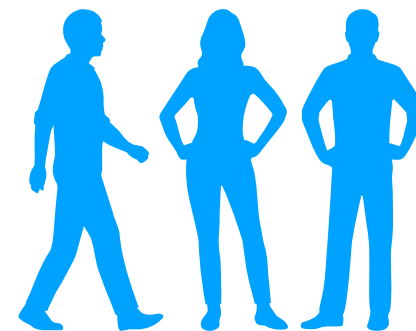
- **Group project: presentation in-class**, from Week 8 to Week 11
 - Group formation: up to 3 students per group, by the end of Week 6
- **Individual project**, must be different from group projects
 - **Individual presentation**, In-class, from Week 12 to Week 13
 - **Final essay**, Submit on Moodle before Final exam
- All slides should be submitted on Moodle for grading

Topic Proposal (**Group**)

- The **group project** should be broader, while the **individual final project** more in-depth
- All **groups** MUST submit **3 preferred topics** to me for review through my survey system by **19 October**
- Announcement of **topic assignment** and **presentation time** will be announced on **21 October**, the first day of presentation is on **29 October**
- Each group presentation should take **10-15 mins**. In addition, the presenting group will need to **prepare to answer questions** raised by the audience
- Each group WILL have a **different topic**

Group Project

Step 1: form group by the end of Week 6

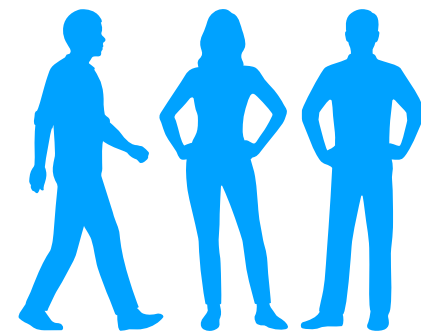


Group: up to 3 students

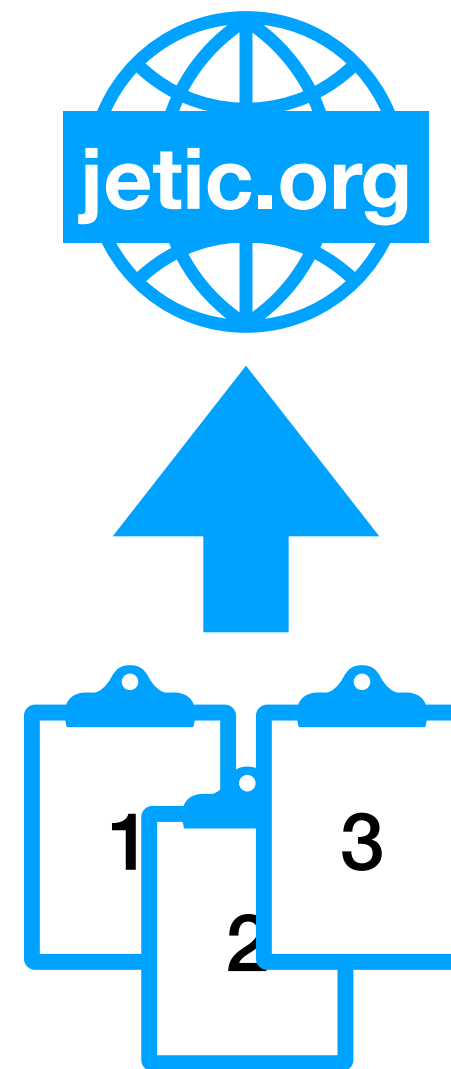
Group Project

Step 1: form group by the end of Week 6

Step 2: submit proposal by 19 Oct



Group: up to 3 students

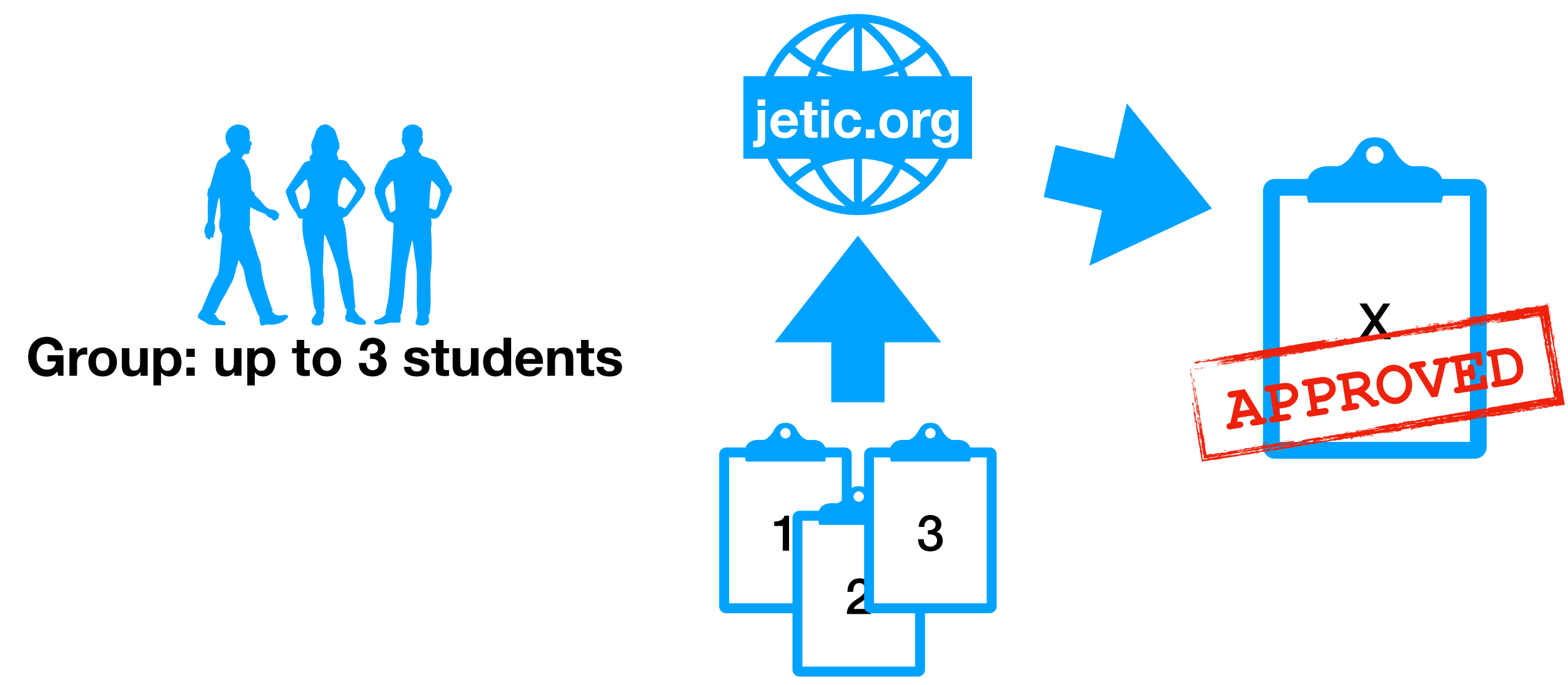


Group Project

Step 1: form group by the end of Week 6

Step 2: submit proposal by 19 Oct

Step 3: receive topic assignment on 21 Oct



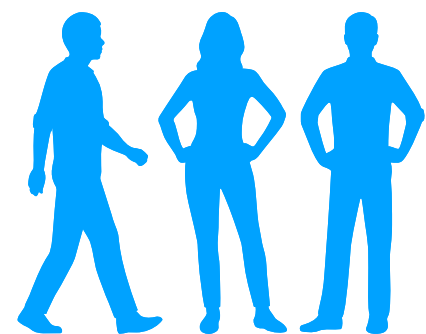
Group Project

Step 1: form group by the end of Week 6

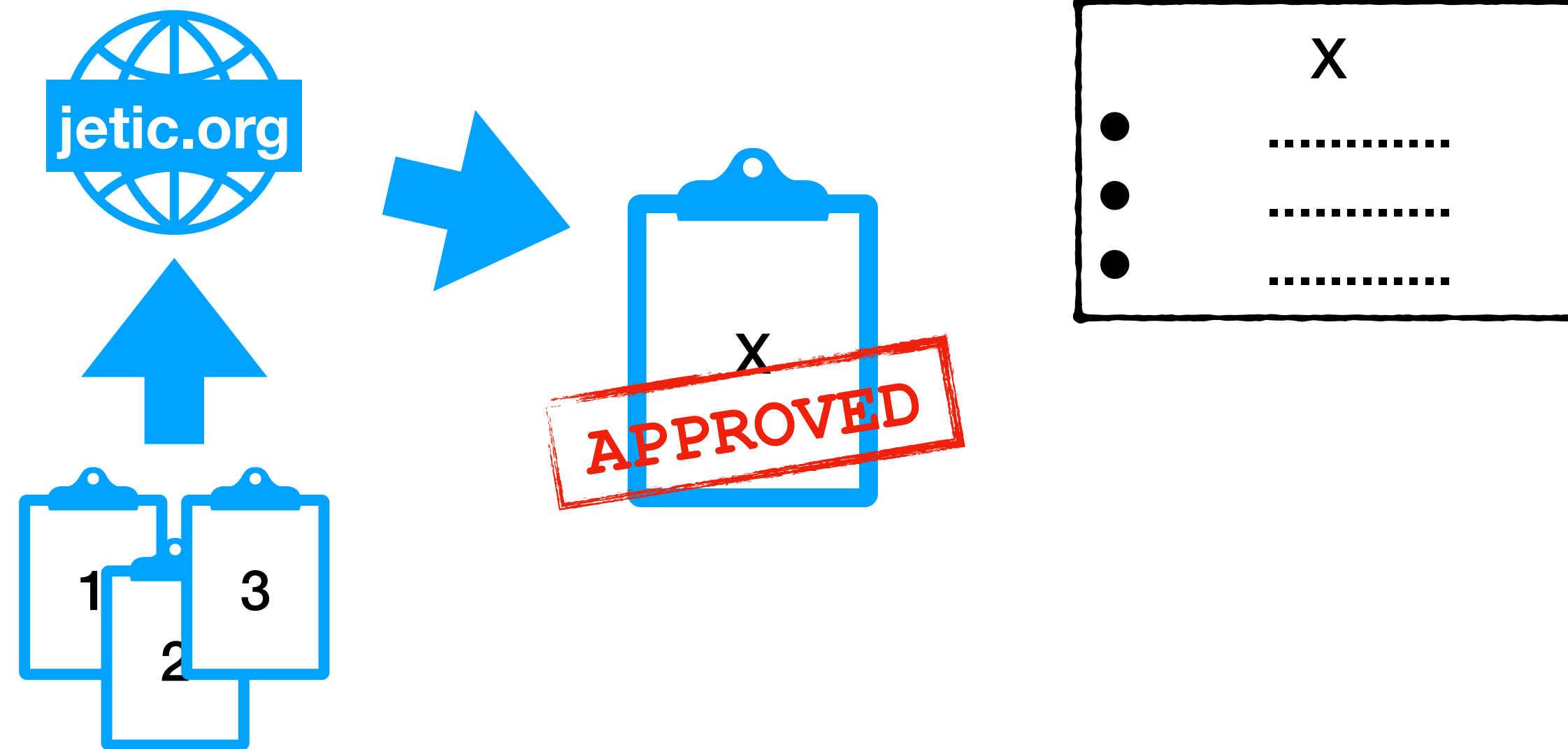
Step 2: submit proposal by 19 Oct

Step 3: receive topic assignment on 21 Oct

Step 4: First presentation on 29 Oct



Group: up to 3 students



Rules for Topic Assignment

- All topic selection **MUST** be reviewed by me, or you will lose **ALL** marks
- **Topic proposal**
be prepared to provide some explanations to your selection of topics
- **A valid topic** can be a **recommended** one, or can be one you think is interesting, and **I will decide if it is valid** and give you feedback
- If **none** of the proposed topics **are valid**, or **other students** are more convincing as to why they **should do your topics**, **I will assign** your a recommended topic

Topic Proposal (**Indie**)

- The **individual final project** **CANNOT** be the same as **the group project**
- Individual projects need to be **more in-depth**, in the forms of **Survey papers**
- All **students** **MUST** submit **3 preferred topics** to me for review through my survey system by **2 November**
- Announcement of **topic assignment** and **presentation time** will be announced on **9 November**, the first day of presentation is on **23 November**
- Each individual presentation should take **10-15mins**. In addition, the presenting student will need to **prepare to answer questions** raised by the audience
- Each student **WILL** have a **different topic**, final paper submission before Final exam

Recommended Topics

Select Pre-Approved

Other topics mentioned in class are also pre-approved

Lecture 1

- History
 - The Women behind ENIAC ★★☆☆☆
 - How is ENIAC Turing Complete? ★★★★★
- Architecture
 - Charles Babbage ★☆☆☆☆
 - The Harvard Architecture ★★★★★
 - Embedded Systems ★★★★★

Lecture 2 Internet

- Automation
- Impact of social media usage on mental health ★★★★★
- Detachment
- How does Social Media Influences Public Opinion? ★★★★★
- The Future of Service Industry: Outlook ★★☆☆☆
- Online Open Education ★★★★★

Lecture 2 Internet

- Untraceable
 - Blockchain and Cryptocurrencies ★★★★★
 - Cyberbullying and Privacy ★★★★★☆
 - Darknet ★★☆☆☆
 - The way we die in the age of the Internet ★★★★★☆

Lecture 3 Multimedia Age

- History of Printing Press ★★☆☆☆
- Digital Photography vs Analogue Photography ★★☆☆☆
- How analogue motion pictures were edited ★☆☆☆☆
- Reading Report: Amusing Ourselves to Death ★★☆☆☆

Lecture 3 Multimedia Age

- Challenges in Streaming ★★☆☆☆
- Piracy in the Internet ★★☆☆☆
- Effect of Streaming Services on the Music Industry ★★☆☆☆
- How are videos streamed on the internet? ★★★★★

Lecture 4 Application

- Human Genome Project ★★☆☆☆
- How did IBM Watson's Medical App Fail? ★★☆☆☆
- How does contact tracing with bluetooth work? ★☆☆☆☆
- Brain Computer Interface: Survey ★★☆☆☆

Lecture 4 Application

- Chaos Weather: Why can't we have accurate weather forecast? ★★★★★
- Social Influence Network Theory: Survey ★★★★★
- Challenges in Autonomous Vehicles ★★★★★
- What makes 5G crucial for Robotics? ★★★★★

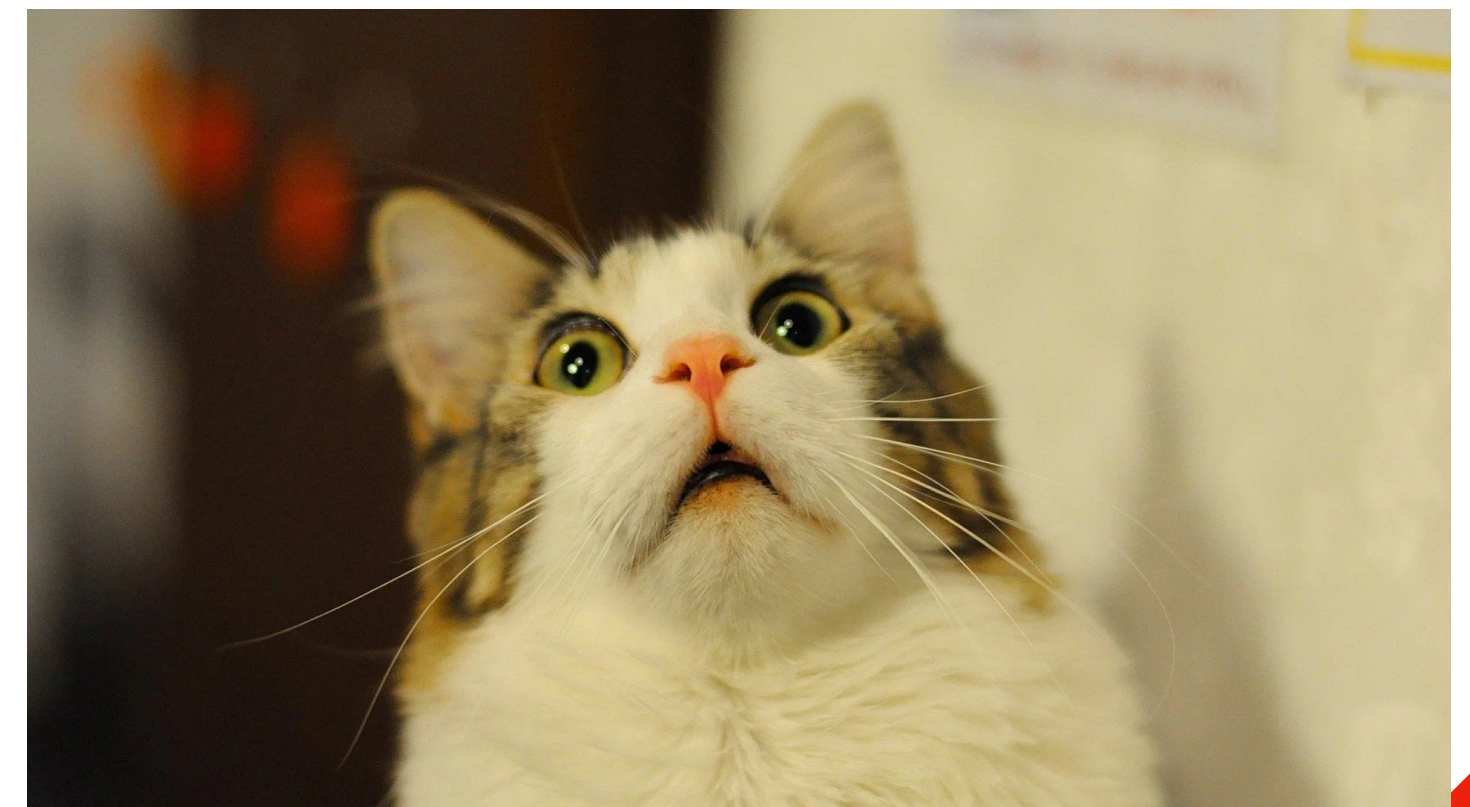
Lecture 4 Application

- Are there any problem with the 3 laws? ★★★★★
- What do you think is the ideal place for Robots (and AI) in human society?
★★★★☆
- Swarm Technology: Survey ★★★★★☆

Grading Criteria for Group Project

Basic Requirements

- Slides are professional looking
- Numbers and Statistics are accurately presented
- Clear division of labour
- Proper use of citations
- Plagiarism: punishable by cat fart.



Grading

- Content No.1
 - Quality of slides
 - Clarity of presentation
 - Importance/relevance of your conclusions
- Workload No.2