Introduction

Information Literacy for Academic Studies

Instructor: Chenhui Chu
Email: chu@i.kyoto-u.ac.jp

Teaching Assistant: Yikun Sun
E-mail: sun@nlp.ist.i.kyoto-u.ac.jp

Self Introduction

- Experience
  - 07/2020-present: program-specific associate professor @ Graduate School of Informatics, Kyoto University
  - 04/2017-06/2020: research assistant professor @ Osaka University
  - 04/2015-03/2017: researcher @ Japan Science and Technology Agency
  - 04/2014-03/2015: research fellowship for young scientists (DC2) @ JSPS
  - 10/2010-03/2015: master & PhD @ Kyoto University

- Research
  - Machine translation (JSPS DC2, Chinese-Japanese MT practical application project, JSPS research activity start-up, Google research scholar, JSPS Scientific Research B)
  - Language and vision understanding (JST ACT-I, MSRA CORE, JSPS young scientists)

Lecture Attendance

- Time: 火2

- Classroom (in principle):共東41

Lecture Handouts

- Lecture handouts will be put in PandA

Evaluation of this Course

- Class attendance (15%)
  - Classroom: KULASIS出席登録システムを利用
    - 毎回IC カードリーダーに学生証を飾ってください
  - Zoom attendance history
  - For KUINEP students: write down your student ID and name in the class

- Reports (65%)
  - 13 mini-reports

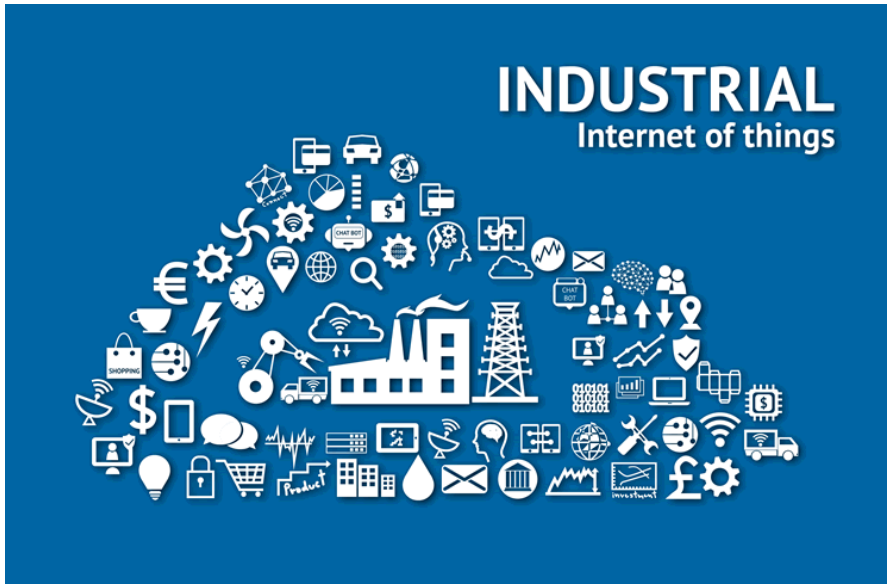
- Final report (20%)

Internet

- Thanks to the development of Internet/WWW, a quick improvement in productivity started from 1995.
- We call it as “New Economy” which tries to use greater information technologies.

Internet of Things

- Describes physical objects (or groups of such objects), that are embedded with sensors, processing ability, software, and other technologies, and that connect and exchange data with other devices and systems over the Internet or other communications networks.

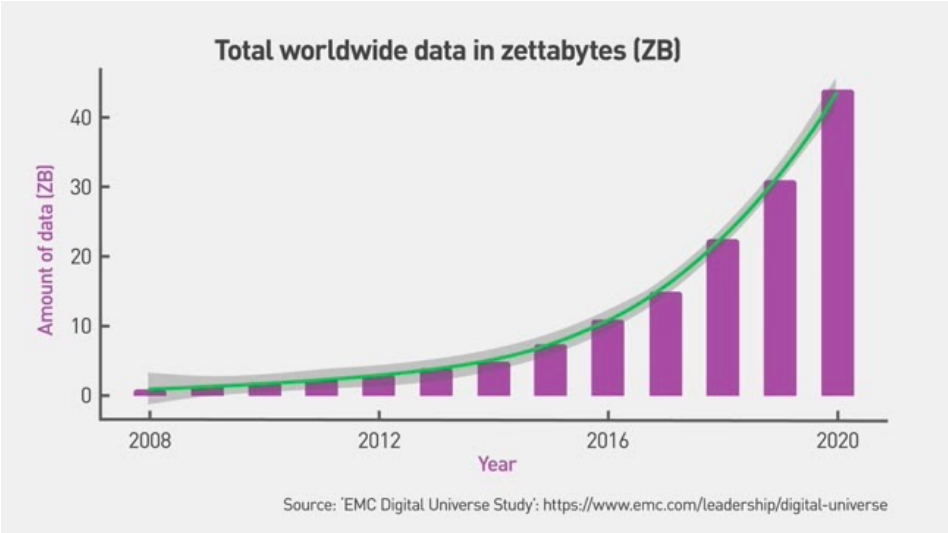


IT and Business

- Researches show that investment in IT can increase productivities of workers in various business sectors. Thus, new technologies are being invented.

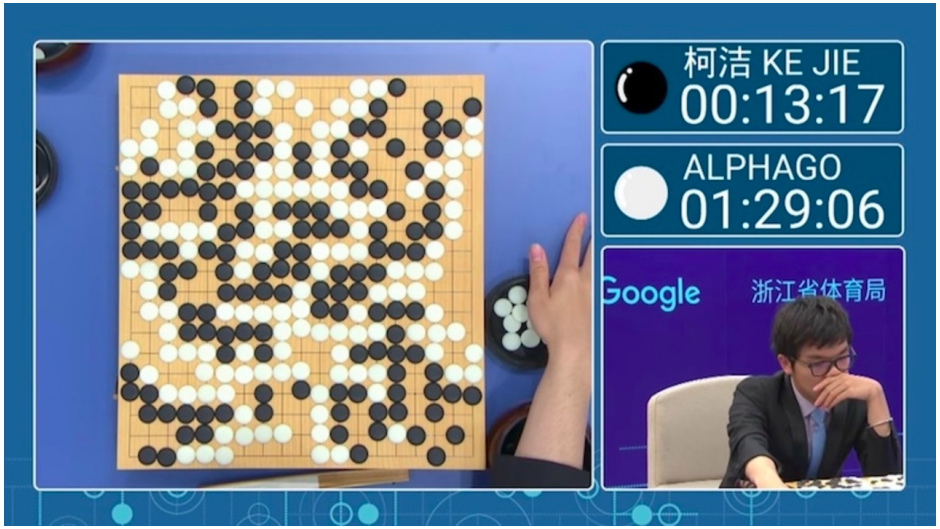
Age of Information

- We are living in an information society with proliferating information resources and drastic changes in our environments.



AI: AlphaGo

- Beat the human Champions in Go



AI: ChatGPT

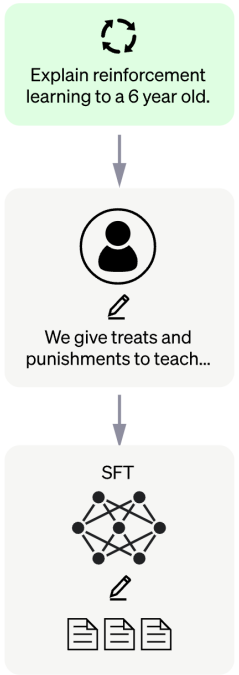
Step 1

Collect demonstration data and train a supervised policy.

A prompt is sampled from our prompt dataset.

A labeler demonstrates the desired output behavior.

This data is used to fine-tune GPT-3.5 with supervised learning.



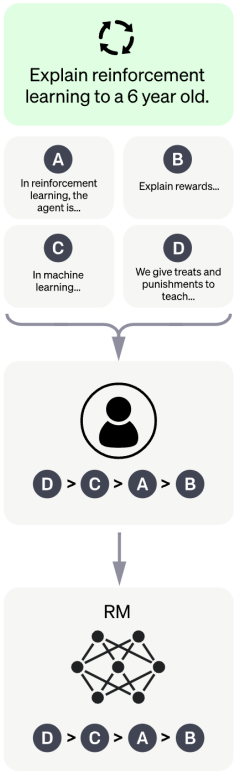
Step 2

Collect comparison data and train a reward model.

A prompt and several model outputs are sampled.

A labeler ranks the outputs from best to worst.

This data is used to train our reward model.



Step 3

Optimize a policy against the reward model using the PPO reinforcement learning algorithm.

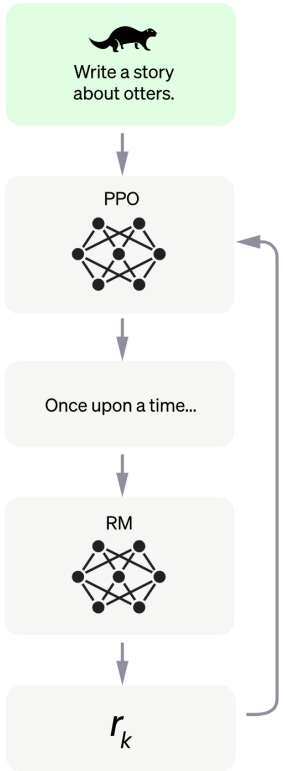
A new prompt is sampled from the dataset.

The PPO model is initialized from the supervised policy.

The policy generates an output.

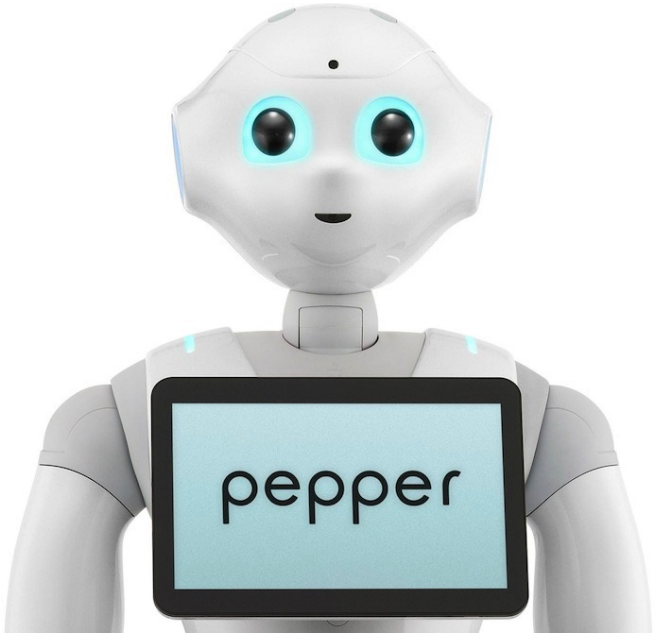
The reward model calculates a reward for the output.

The reward is used to update the policy using PPO.



AI: Robots

- Can act similar to humans



Challenges in Age of Information/AI

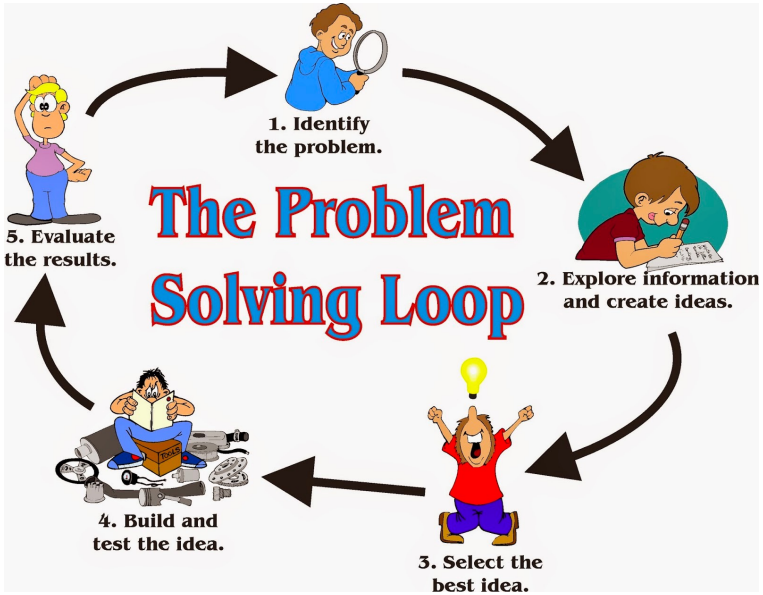
- We are facing new challenges, viz., new hardware, new software, and new applications with synergy of hardware and software, etc.
- Thus, people are expecting to upgrade and add values to themselves.

Difficulties in Finding Information

- There's a whole lot more information out there, but in many cases it makes finding exactly what you're looking for more difficult.
- It also makes it harder to know if you've found a reliable source.

How to Live in Age of Information/AI

- To compete with others, we need to possess the ability knowing the specific skills to information problem solving.
- We must be information literate!



Course Description

- This course is designed to train you to be able to

effectively identify / search / evaluate / use / present the information for decision making / problem solving in your academic studies.

- This course focuses on the abilities of autonomous and life-long learning which is essential in today's society.

Outline of this Course

- Basic concepts of information literacy
- Study strategies
- Searching in library
- Searching databases
- Searching internet
- Evaluating sources
- Referring sources and academic integrity
- Presenting information

Objectives of this Course

1. Teach you to be able to identify, search, evaluate, use, and present information effectively for decision making and problem solving in your academic studies.

2. Train you to become autonomous learners and have capabilities of life-long learning.
   - Learn how to learn.
   - Be value-added throughout the university time and your lives.

What is Information Literacy (IL)? (1/2)

- Information Literacy (IL) is the set of skills for information problem solving, the skills commonly taught in liberal arts science institutions around the world.
  - “The ability to access, organize and use information from a variety of sources" (Ofsted)

- (From ACRL's Information Literacy Competency Standards for Higher Education)

What is Information Literacy (IL)? (2/2)

- “The means to acquire the necessary range of skills needed to identify their own information needs and make effective use of reading, note-taking, writing and communication skills … (with) thinking skills and self evaluation" (Herring)
- "It empowers people in all walks of life to seek, evaluate, use and create information effectively to achieve their personal, social, occupational and educational goals. It is a basic human right in a digital world and promotes social inclusion of all nations." (Alexandria Proclamation, UNESCO)

- (From ACRL's Information Literarcy Competency Standards for Higher Education)

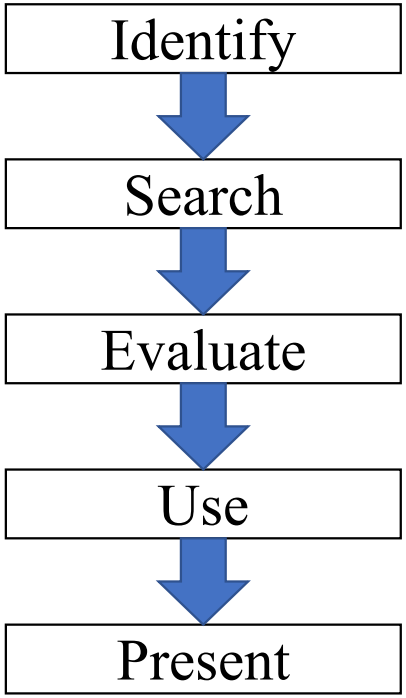
Information Literacy (IL) V.S. Information Technology (IT) Skills

- Information literacy
  - Stresses on information problem solving skills, it provides an academic framework for identifying, searching, evaluating, using, and presenting information.

- Information technology skills
  - Refer to skills in using computers, software applications, databases, and other technologies (hardware/software) to achieve a wide variety of academic, work-related, and personal goals.
  - Support IL in various stages, with skills in using Internet/WWW, word-processing, spreadsheet, presentation graphics, database.

Information Literacy (IL)

- Identify the problem and the information needs, and determine the extent.
- Develop a search strategy which can access the needed information effectively and efficiently.
- Evaluate the information obtained and its sources critically.
- Extract, summarize and analyze the information into your knowledge base, and effectively accomplish the task.
- Write a paper and give a presentation. Do use information ethically and legally (citation).



Problem Solving Models: Big6 Model (1/2)

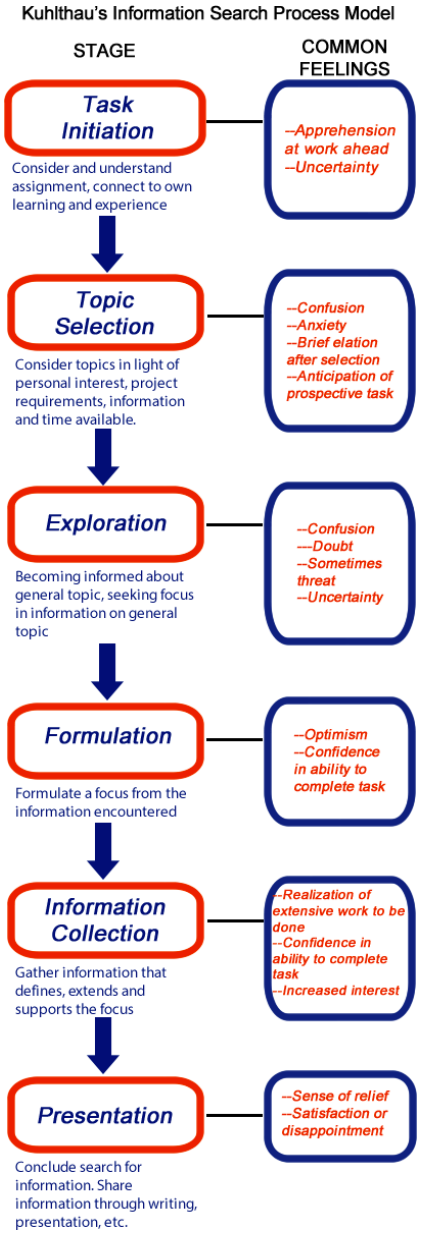
1. Task Definition
   - Define the problem.
   - Define the information requirements of the problem.
2. Information Seeking Strategies
   - Determine the range of possible resources.
   - Evaluate the different possible resources to determine priorities.
3. Location and Access
   - Locate sources.
   - Find information within resources.

Problem Solving Models: Big6 Model (2/2)

4. Use of information
   - Engage.
   - Extract information within resources
5. Synthesis
   - Organize information from multiple sources.
   - Present information.
6. Evaluation
   - Judge the product.
   - Judge the information problem-solving process.

Problem Solving Models: Research Model Process (1/2)

1. Choose a broad topic.
2. Get an overview of the topic.
3. Narrow the topic.
4. Develop a thesis or statement of purpose.
5. Formulate questions to guide research.
6. Plan for research and production.
7. Find, analyze and evaluate sources.
8. Evaluate evidence. Take notes. Compile bibliography.
9. Establish connections. Organize information into an outline.
10. Create and present final product.



Problem Solving Models: Research Model Process (2/2)

- Research Model Process is similar to creating a research paper.
  - Each stage requires reflection on what had just been completed.
  - Therefore, it is also named “basic” research process model.

Preview of the Course

- Basic concepts of information literacy
- Study strategies
- Searching in library
- Searching databases
- Searching internet
- Evaluating sources
- Referring sources and academic integrity
- Presenting information

Preview of the Course: Study Strategies

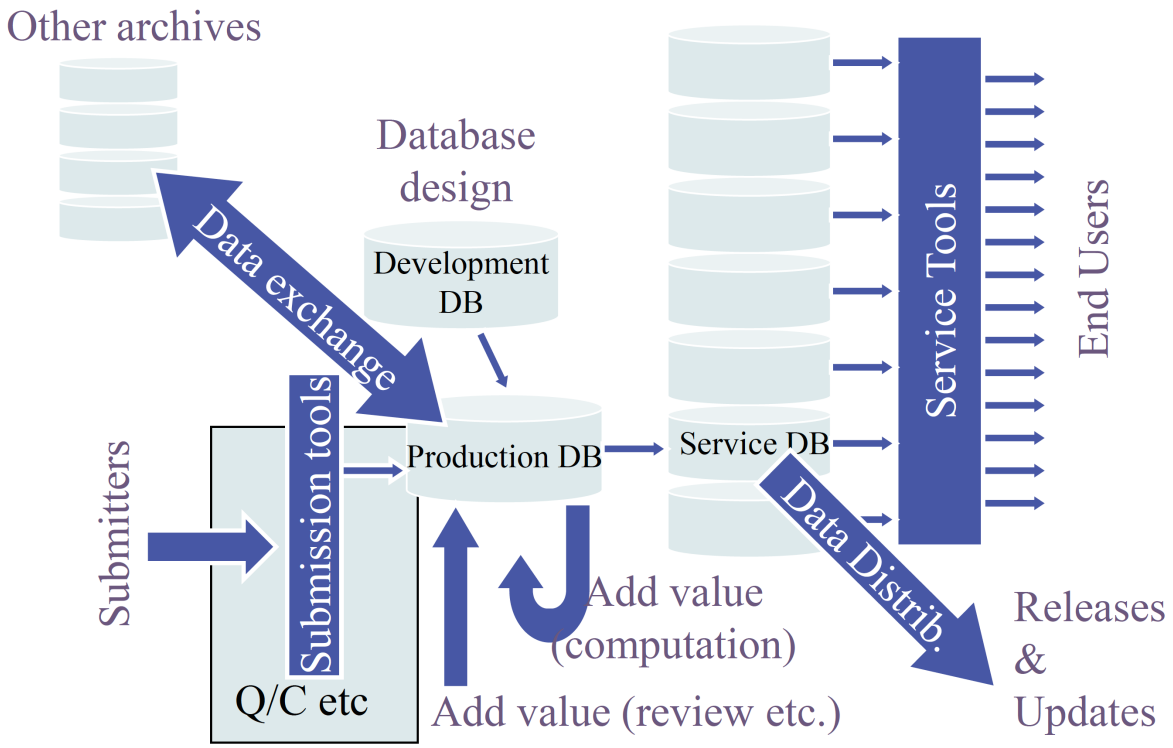
1. Identify and develop a topic
2. Determine the information you need
3. Develop a search strategy
4. Find, gather, and evaluate the information
5. Write and revise
6. Document sources used

Preview of the Course: Searching in Library

- Use the library catalog
  - Catalog can help you quickly and efficiently find books and AV items in the library.

- Before the computer age, this was accomplished by the card catalogue — cabinets

Preview of the Course: Searching Database



Preview of the Course: Search Internet

- It is the part of Web Search Engine interacting with the users and allowing them to query and view query results.

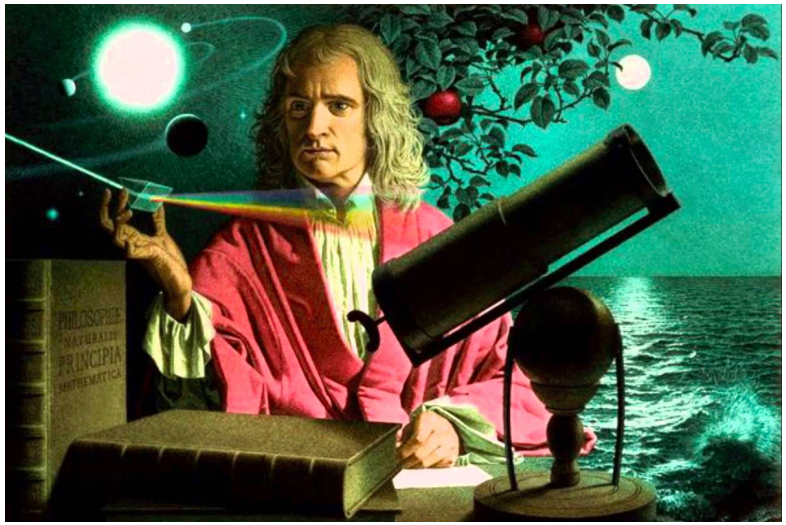
Preview of the Course: Evaluating Sources

- Whatever information you're looking at, you should always apply these seven Evaluation Criteria:
  - Authority
  - Accuracy
  - Purpose
  - Currency
  - Objectivity
  - Appropriateness

Preview of the Course: Referring Sources

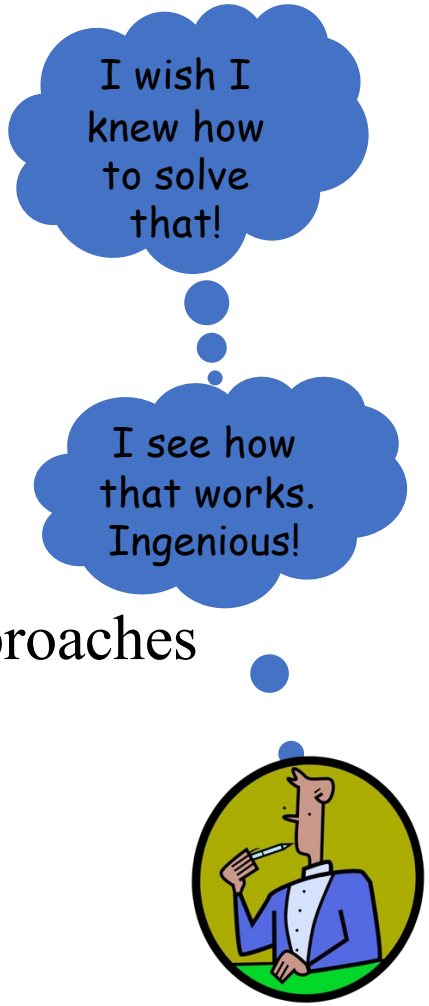
If I have seen further it is by standing on the shoulders of giants.

Sir Isaac Newton, 17th-century scientist



Preview of the Course: Presenting Information

- Here is a problem
- It's an interesting problem
- It's an unsolved problem
- **Here is my idea**
- My idea works (details, data)
- Here's how my idea compares to other people's approaches



Task 1

- Discuss how to design an app for smartphones that helps you to locate the best lectures for your study. Hints:
  - What are the requirements for the target?
  - What do you do if you do / don't know the topics?
  - How to make the topics clearer?
  - What is your target, a prototype or a perfect product?

- Submit your design report in pdf named as [**student id_name**] via PandA by next lecture.