Seminar: Turing Award Winners and Their Contributions
1. Organization, Dates & Topics

Malte Helmert, Augusto Blaas Corrêa and Florian Pommerening

University of Basel

September 17, 2020

Protective measures
at the University of Basel

Students are to wear masks on the way to their seats and again when they leave their seats.

Masks do not have to be worn during lessons.

Masks must be worn outside the lecture rooms.

Eating during lessons is prohibited.

Students must clean their work surfaces before the start of the lesson.

Rooms with windows will be ventilated before lectures. This is the responsibility of teaching staff.

Turing Award Winners and Their Contributions
OOOO

Organization
OOOOOOOOOOOOOOOOOO

Topics and Next Steps
OOOOO

Seminar: Turing Award Winners and Their Contributions
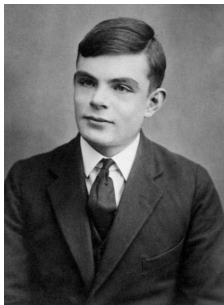## 1. Organization, Dates & Topics

Malte Helmert, Augusto Blaas Corrêa and Florian Pommerening

University of Basel

September 17, 2020

Turing Award Winners and Their Contributions

Seminar Topic – Turing Award

- Turing Award is the "Nobel Prize of Computing"
- Awarded by the ACM since 1966
    - First winner: Alan Perlis, inventor of ALGOL
    - Latest winners: Edwin Catmull and Pat Hanrahan, contributions to computer graphics
- Helps to tell part of the history of modern computer science

Turing Award Winners and Their Contributions
○○●○

Organization
○○○○○○○○○○○○○○○○○

Topics and Next Steps
○○○○○

Some Turing Award Trivia

- Researchers from 13 different nationalities won the award
  - Only US, UK, Israel, Canada, France and Norway
    have multiple winners
- Niklaus Wirth is the only Swiss person to ever win the award
  - Joseph Sifakis (Greece) won the award while working at EPFL
- No money prize until 2007
  - 2007–2013: 250,000 USD
  - Since 2014: 1,000,000 USD

Some of the Winners

John McCarthy

Donald Knuth

Stephen Cook

Vint Cerf

Frances Allen

Edmund M. Clarke

Judea Pearl

Whitfield Diffie

Yoshua Bengio

Turing Award Winners and Their Contributions
○○○○

Organization
●○○○○○○○○○○○○○○○○

Topics and Next Steps
○○○○○

Organization

Target Group and Prerequisites

Target Group

- BSc students of Computer Science and similar subjects

Prerequisites

- Basic programming skills (for the programming project)
- Ability to work independently

Turing Award Winners and Their Contributions
OOOO

Organization
OOOOOOOOOOOOOOOO

Topics and Next Steps
OOOOO

Format

Seminar Format

- Theoretical part + programming project
- 6 ECTS points
- Assessment: graded

Objectives

Objectives

Seminar:

- reading and understanding scientific literature
- conducting scientific discussions with peers
- preparing and presenting scientific talks
- writing and discussing scientific reports

Project:

- independent solution of programming projects
- clean and efficient code ($\rightsquigarrow$ code reviews)
- evaluation of algorithms ($\rightsquigarrow$ scientific experiments)

Meetings

Sep 17	16:15–19:00	organization, dates & topics
		how to write a report, give a presentation,
		and write a peer review
Nov 5	16:15–19:00	seminar presentations
Nov 12	16:15–19:00	seminar presentations
Nov 19	16:15–19:00	seminar presentations
Nov 26	16:15–19:00	seminar presentations
Dec 3	16:15–19:00	seminar presentations
Dec 17	16:15–19:00	project presentations

room 05.002, Spiegelgasse 5

We might need all 3 hours today but plan to stop earlier in the remaining meetings.

Requirements I

Requirements to pass the course

- write a seminar report
    - 10–12 pages, LaTeX
    - anonymized initial version due: October 21
    - final version due: November 11

...

Requirements I

Requirements to pass the course

- write a seminar report
    - 10–12 pages, LATEX
    - anonymized initial version due: October 21
    - final version due: November 11
- write a peer review
    - 1–2 pages
    - due: October 28

. . .

Requirements I

Requirements to pass the course

- write a seminar report
    - 10–12 pages, LaTeX
    - anonymized initial version due: October 21
    - final version due: November 11
- write a peer review
    - 1–2 pages
    - due: October 28
- give a seminar presentation
    - 30 minutes including discussion
    - draft due: one week before the talk
    - final version due: the evening before the talk

. . .

Turing Award Winners and Their Contributions
oooo

Organization
ooooo●oooooooooooo

Topics and Next Steps
ooooo

Requirements I

Requirements to pass the course

- write a seminar report
    - 10–12 pages, LaTeX
    - anonymized initial version due: October 21
    - final version due: November 11
- write a peer review
    - 1–2 pages
    - due: October 28
- give a seminar presentation
    - 30 minutes including discussion
    - draft due: one week before the talk
    - final version due: the evening before the talk
- submit one pub quiz question per topic
    - due: the evening before the talk

. . .

Requirements II

Requirements to pass the course (continued)

- submit an implementation for the programming project
  - due: December 9

Requirements II

Requirements to pass the course (continued)

- submit an implementation for the programming project
  - due: December 9
- give a project presentation
  - 5 minute talk including a demo

Requirements II

Requirements to pass the course (continued)

- submit an implementation for the programming project
  - due: December 9
- give a project presentation
  - 5 minute talk including a demo
- participate in all meetings

Requirements II

Requirements to pass the course (continued)

- submit an implementation for the programming project
  - due: December 9
- give a project presentation
  - 5 minute talk including a demo
- participate in all meetings
- actively participate in discussions

Turing Award Winners and Their Contributions
OOOO

Organization
OOOOOOO●OOOOOOOOO

Topics and Next Steps
OOOOO

Grading

Grading

- written report (final version) (25%)
- peer review (15%)
- seminar presentation (25%)
- implementation for the programming project (25%)
- project presentation (10%)

Each component will be graded individually on a scale of 1.0-6.0.
The final grade is the weighted average of all partial grades.

Peer Review

- You will receive someone else's seminar report and give written feedback.
- Feedback is anonymous.
- Goal: learn through new perspective

Pub Quiz

- We will start each meeting with a short pub quiz.
- Everyone submits one question per topic
    - 1 correct and 3 plausible but false answers
    - source to verify the correctness
    - not taken directly from the award winners' Wikipedia pages
    - questions do not have to be scientific
- We select questions from this pool.
- Submitting questions is mandatory but quizzes are unmarked.

Programming Project

- Programming project should be related to your seminar topic
- Discuss with your supervisor:
    - programming language
    - project description
- When?
    - as soon as you have a sufficient overview of your topic
    - October 14 at the latest
    - seminar presentation should have one slide on the project

Supervisors

Malte Helmert

Augusto B. Corrêa

Florian Pommerening

Silvan Sievers

Thomas Keller

Salomé Eriksson

Patrick Ferber

Clemens Büchner

Organizers

Organizers

Malte Helmert
- email: `malte.helmert@unibas.ch`
- office: Spiegelgasse 1, room 06.004

Augusto B. Corrêa (main contact)
- email: `augusto.blaascorrea@unibas.ch`
- office: Spiegelgasse 5, room 04.001

Florian Pommerening
- email: `florian.pommerening@unibas.ch`
- office: Spiegelgasse 1, room 04.005

Turing Award Winners and Their Contributions
OOOO

Organization
OOOOOOOOOOOOOO●OOOO

Topics and Next Steps
OOOOO

Other Supervisors

- Spiegelgasse 1, room 04.002
    - Salomé Eriksson
      salome.eriksson@unibas.ch
- Spiegelgasse 1, room 04.005
    - Silvan Sievers
      silvan.sievers@unibas.ch
    - Thomas Keller
      tho.keller@unibas.ch
- Spiegelgasse 5, room 04.001
    - Patrick Ferber
      patrick.ferber@unibas.ch
    - Clemens Büchner
      clemens.buechner@unibas.ch

Material & Registration

Seminar Homepage

```
https://dmi.unibas.ch/de/studium/
computer-science-informatik/lehrangebot-hs20/
seminar-turing-award-winners-and-their-contributions/
```

- seminar description
- slides
- examples for good talks, reports, and reviews

Registration:

- `https://services.unibas.ch/`
- note limited slots and priority rules!

Plagiarism

Plagiarism

- **Plagiarism:** representing work or ideas of other people as your own.
- Consequence: failing the seminar
- If in doubt: ask us before the fact!

Repeat offenders can be excluded from the study program.

Language

- The seminar is in English.
- We recommend English but you may use German for presentations and reports.
- Discuss your programming language with your supervisor.

Questions about the Organization

Questions?

Turing Award Winners and Their Contributions
○○○○

Organization
○○○○○○○○○○○○○○○○○

Topics and Next Steps
●○○○○

Topics and Next Steps

Turing Award Winners and Their Contributions
oooo

Organization
oooooooooooooooooo

Topics and Next Steps
o●ooo

Turing Awards

- Each Turing award is a potential topic
    - we group by year, not by person
    - report can cover the person/team in general
      or specific achievements of them
- Until next Wednesday (September 23):
    - make three topic suggestions
    - one from each time period: 1966–1983, 1984–2001, 2002–2019
    - for each case write a short paragraph:
      why is this a good topic and what do you want to focus on?
    - send them to us ordered from most preferred to least preferred
    - send us also your preferred language (English or German)

Turing Award Winners and Their Contributions
OOOO

Organization
OOOOOOOOOOOOOOOOO

Topics and Next Steps
OO●OO

Topic Assignment and Next Steps

- We will send out the topic and supervisor assignments, and the presentation dates next Thursday.
- Start reading the material as early as possible.
- Contact your supervisor early and schedule meetings.

What Do We Expect?

- Each Turing Award is justified by some scientific contribution.
- Your report, presentation, and programming project should be related to these contributions.
- We also expect you to talk about the career of the winners.
- Science + History

In some cases, you might also focus on the lifetime contributions of the laureates, instead of the specific ones leading to the award.

Turing Award Winners and Their Contributions
○○○○

Organization
○○○○○○○○○○○○○○○○○

Topics and Next Steps
○○○○●

Important Dates

Sep 23   due date: topic suggestions
Sep 24   topic assignment
Oct 14   agree with supervisor on project topic
Oct 21   due date: initial version of report
Oct 28   due date: peer review
 Nov 5   meeting: seminar presentations
Nov 11   due date: final version of report
Nov 12   meeting: seminar presentations
Nov 19   meeting: seminar presentations
Nov 26   meeting: seminar presentations
 Dec 3   meeting: seminar presentations
 Dec 9   due date: project implementation
Dec 17   meeting: project presentations

- one week before your presentation: draft of slides
- day before your presentation: final version of slides
- day before any presentation: pub quiz questions