



TECHNISCHE  
UNIVERSITÄT  
WIEN

Vienna University of Technology

# Opening of the Center for Artificial Intelligence & Machine Learning (TUW CAIML)

Clemens Heitzinger and  
Stefan Woltran

Faculty of Informatics and  
Faculty of Mathematics and Geoinformation

# Program

16:15 – **Welcome addresses**

16:30 – Keynote talk:

**How to Augment Supervised Learning with Reasoning**

Leslie Valiant, Harvard University, USA

17:50 – **Presentation of CAIML**

18:00 – Panel discussion:

**AI Between Scientific Research and Societal Impact**

19:00 – **Closing remarks**

# Welcome Addresses

Sabine Seidler,  
Rector of TU Wien

Gerti Kappel,  
Dean of the Faculty of Informatics

Wolfgang Wagner,  
Dean of the Faculty of Mathematics and Geoinformation

# Keynote talk: How to Augment Supervised Learning with Reasoning

Turing Award Winner **Leslie Valiant**, Harvard University, USA



Moderator: Clemens Heitzinger, CAIML

# Intermission

Coming up:

17:50 – **Presentation of CAIML**

18:00 – Panel discussion:  
**AI Between Scientific Research and Societal Impact**

19:00 – **Closing remarks**

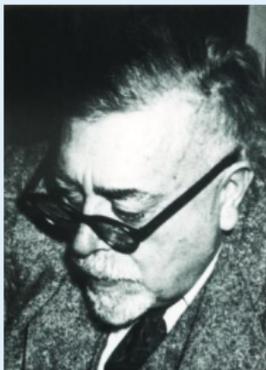
# Artificial Intelligence and Machine Learning

(Artificial) intelligence and (machine) learning have been captivating and inspiring subjects for thousands of years:



Prometheus and Epimetheus, Hephaestus's mechanical helpers, golems, Leibniz's *calculemus*, robots, etc.

# Norbert Wiener and John McCarthy



Norbert Wiener (MIT): *Cybernetics: Or Control and Communication in the Animal and the Machine*, 1948.

John McCarthy (Dartmouth College, MIT, Stanford): coined term “artificial intelligence,” Turing award.

Our mission is to unite both approaches in our center!

# Dartmouth Summer Research Project on Artificial Intelligence

Organized in summer 1956 by John McCarthy, Marvin Minsky, Nathaniel Rochester, and Claude Shannon at the Dartmouth College in Hanover, New Hampshire.

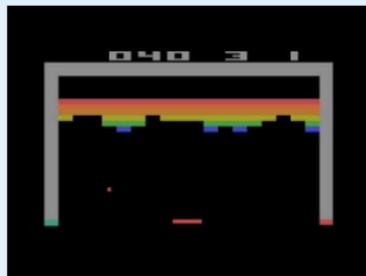
August 1955: requested \$ 13 500 from Rockefeller Foundation:

*“We propose that a 2 month, 10 man study of **artificial intelligence** be carried out during the summer of 1956 at Dartmouth College in Hanover, New Hampshire. The study is to proceed on the basis of the **conjecture that every aspect of learning or any other feature of intelligence can in principle be so precisely described that a machine can be made to simulate it.** An attempt will be made to find how to make machines use language, form abstractions and concepts, solve kinds of problems now reserved for humans, and improve themselves. We think that a **significant advance** can be made in one or more of these problems if a carefully selected group of scientists work on it together **for a summer.** [...]”*

# Progress is Accelerating

Various factors at the same time: computational power, memory, and data.

Example: DeepMind's AlphaZero.



Challenges: e.g. devise algorithms, develop theoretic foundations of new algorithms, trustworthiness, reliability, explainability, understand human brain.

## Twelve Board Members (1/2)



Clemens Heitzinger  
Co-Director



Stefan Woltran  
Co-Director



Ivona Brandic



Thomas Eiter



Peter Filzmoser



Thomas Gärtner

## Twelve Board Members (2/2)



Georg Gottlob



Radu Grosu



Allan Hanbury



Nysret Musliu



Julia Neidhardt



Stefan Szeider

All 12 board members in total: 1x Wittgenstein, 1x ERC Starting Grant, 3x START, 1x Emmy Noether, 1x NSF Early Career Award, 2x CD Lab; 1x Member ÖAW, 2x ACM fellow, 3x EURAI fellow.

# International Advisory Board (1/2)



Peter A. Flach  
University of Bristol  
President European Association for Data Science



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University of Southern California  
Former Chair SIAM Activity Group Uncertainty Quantification



Wolfgang Nejdl  
Leibniz Universität Hannover  
Executive Director L3S Research Center

## International Advisory Board (2/2)



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LMU München  
Former Federal Minister (Germany)



Daniela Rus  
MIT  
Head CSAIL



Carles Sierra  
Director Artificial Intelligence Research Institute, Barcelona  
President European Association for AI (EURAI)

# Scientific Program

Artificial intelligence.

Machine learning.

The intersection, applications, and digital humanism.

Our website: [caiml.org](http://caiml.org).

# Panel Discussion: AI Between Scientific Research and Societal Impact

**Gerhard Friedrich**, University of Klagenfurt, Austria

**James Larus**, EPFL, Switzerland

**Helga Nowotny**, Former President of the European Research Council

**Paul Timmers**, University of Oxford, UK, and European University, Cyprus

Moderator: Stefan Woltran, CAIML

# Closing Remarks

Website [caiml.org](http://caiml.org).

Upcoming:

- ▶ In March, talk by renowned international speaker.
- ▶ Guest professor in digital humanism:  
Edward A. Lee (UC Berkeley, USA)  
in cooperation with the Institute for Human Sciences (IWM).
- ▶ In May–June, thematic program on uncertainty quantification and machine learning at the Erwin Schrödinger Institute in Vienna:  
<https://www.esi.ac.at/events/e22/>.
- ▶ IJCAI conference in Vienna in summer: [ijcai-22.org](http://ijcai-22.org).



Thank you all!

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