

Welcome

Digital Humanism Summer School 2022
Vienna, Sep 2022

Hannes Werthner

Digital Humanism

Approach to describe, analyze and, above all, to try to influence the complex interplay between IT and humanity - for a society that fully respects universal human rights

- Looks at a complex social economic technical process (fundamental for our society), with its own dynamics
- Analyze and act / intervene
- Interdisciplinary
- Broad: from research to politics

Summer school: different topics and disciplines, interactive, mix of teaching and workshop

Program

	Monday	Tuesday	Wednesday	Thursday	Friday
Morning 9.00 – 12.30	Welcome + Intro to Digital Humanism H. Werthner G. Metakides H. Akkermans	Ethics and Responsible Design G. Tamburrini V. Schiaffonati S. Winter	Participation and Democracy G. Metakides G. Zarkadakis A. Stanger	Work in a New World D. Samaan A. Casilli	Sovereignty, Security, and Geopolitics R. Posch P. Timmers
Lunch					
Afternoon 14.00 – 17.30	AI, Humans, and Control E. Lee S. Köszegi C. Neppel	Fair Systems J. Gordijn, A. Bon S. Mendis	Platform Power, Regulation C. Codagnone G. Parker	Participants' Projects 2 C. Ghezzi J. Kramer, B. Nuseibeh	Participants' Projects 3, Learnings C. Ghezzi J. Kramer, B. Nuseibeh
Evening	Participants' Projects 1 C. Ghezzi J. Kramer B. Nuseibeh		Dinner V. Kaup- Hasler Keynote M. Vardi		

22 lectures plus 3 exercise slots, 6 lectures online
Sessions are moderated

Organizational issues

Recording

WLAN

No special
in lecture

Certifica



nsent

s, recommended

This is to certify that

Max Mustermann

attended the *Digital Humanism Summer School* in Vienna, Austria

from 19th to 23th September 2022

The summer school program is comprised of 22 lectures, 3 exercises, and a written report, amounting to 75 hours of study (comparable to 3 ECTS credit point).

Organizational issues

Recording, to be published online afterwards, we need your consent

WLAN

No specific Covid regulations, but public transport FFP2 masks, recommended in lecture hall

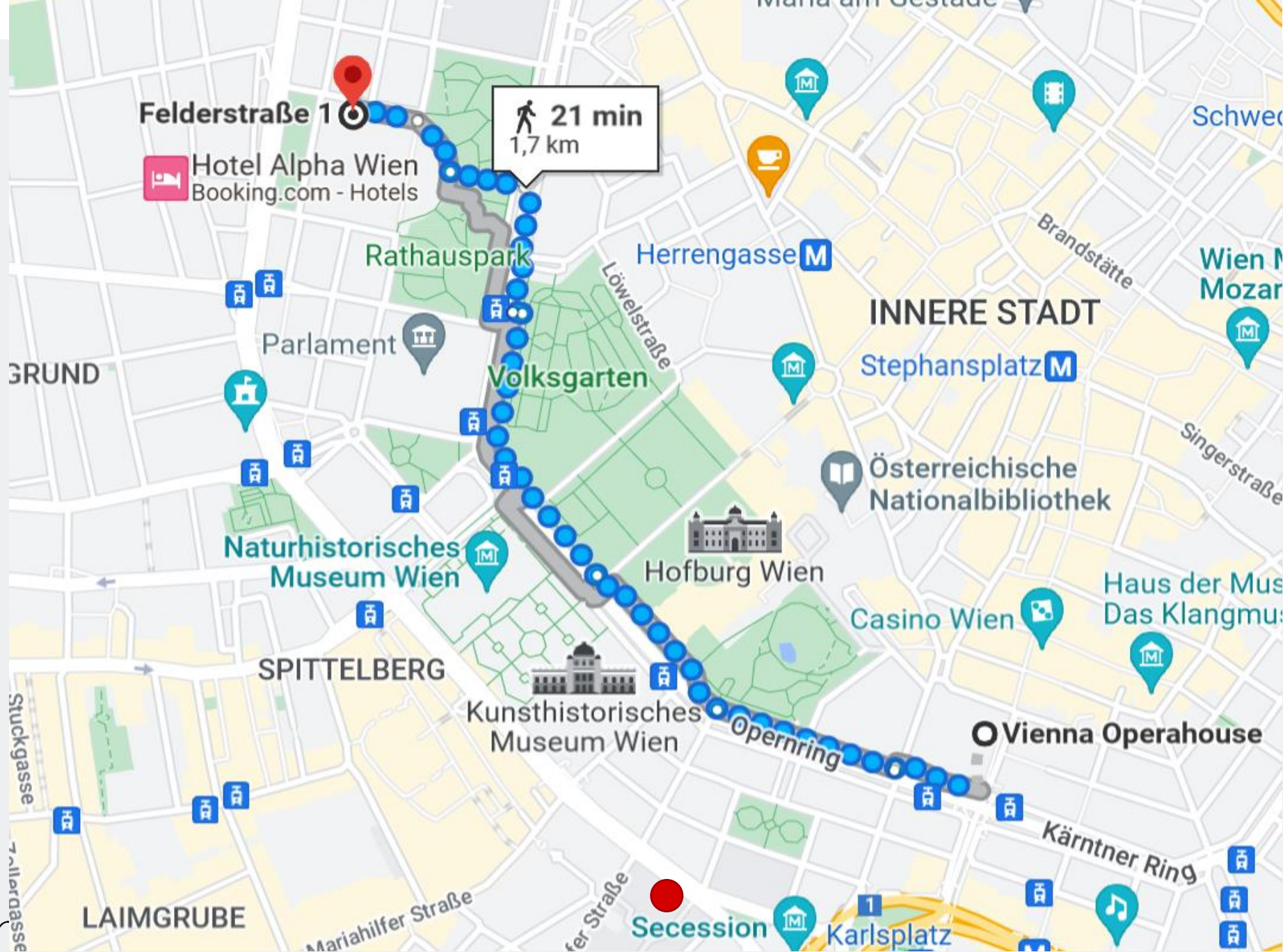
Certificate with ECTS (2 or 3) – with or without final report

Each day

Two coffee breaks approx. at the middle of each slot

Lunch


Wednesday: Dinner at Rathaus, after Keynote (starts at 7 pm)



Tram 1, 71, D

Sponsors

AURORA

 **Bundesministerium**
Klimaschutz, Umwelt,
Energie, Mobilität,
Innovation und Technologie



 **electronic**
commerce

ecosio



 **Stadt**
Wien

 **TECHNISCHE**
UNIVERSITÄT
WIEN
Vienna | Austria

 **Informatics**

VIENNA
NOW ♦ FOREVER

 **Informatics**

Scholarships



[Out of a brown bag lunch](#)



[George Metakides](#)



[Sarah Kriesche](#)

SERENTSCHY.COM
SERENTSCHY ADVISORY SERVICES GMBH



Organizers

Center for AI and ML (CAIML), TU Wien

Digital Enlightenment Forum

Digital Humanism Initiative

Some Numbers

- 65 participants / 143 applications
- 12 scholarships / 51 scholarship applications
- 22 countries
- Background: many different disciplines, students and Profs, Universities, NGOs, institutions and companies

Morning Program

- Welcome
- You: Name, Country, Discipline / Profession, DigHum: what interests you most (**one sentence**)
- Hannes Werthner: Introduction to Digital Humanism
- George Metakides: No Time for Complacency
- Hans Akkermans: Neurath's Digital Boat: Responsibility and Possibilities of Change in and of a Digital(izing) World

Digital Humanism

Hannes Werthner
DigHum Summer School
Sep 19, 2022

This is absolute nonsense

Response at the first ENTER conference on IT & Tourism in Innsbruck, 1994.

- Beat Schmid (University of St. Gallen) on **Internet** and **electronic markets**
- Larry Press (UCLA) on **digital agents** as copies of ourselves



- We live in a digital – physical world
- It is public space: participation (almost) mandatory, not to be excluded

Today

- Digital transformation = **Informatization** of our societies
complex socio-economic technical process changing us and the world
- Internet / Web global infrastructure
- Informatics / its tools „operating system“ of our society

Pandemic showed power of Internet / Web, but also shortcomings

- limitations w.r.t. to social / organisational embeddedness
- few technical problems

War against Ukraine

- Web and social media an amplifier for Ukraine
- IT important role in economic and military conflicts

Comments on Informatics

- Very short history, from first study programs in 70s to *Latin of today* - A. Loprieno (Chair ASC)
- Computer Science / Informatics (its methods, paradigm, artefacts) broad and foundational
 - i) *Informatics as subject*, ii) *Informatics in subject*
- **Kristen Nygaard:** *Informatics as the science that has as its domain information, information processes and related phenomena in artifacts, society and nature*

Pillars :

- Mathematics and Logics
- Natural Science (from hypothesis to validation / experiment)
- Engineering (from formal statements to design and implementation)
 - Also knowledge as social construct, engineering as „social“ activity – man machine systems
- Interesting: algorithmic solution of problems vs understanding of human thinking:
 - Simulation (e.g., IAS Computer Von Neumann, simulation and weather forecast)
 - Turing with his test / defining intelligence?

Informatics cont

- Computer: general purpose automaton that controls itself through software
- SW instantiates automaton to a concrete machine (e.g., for gaming, calculation)
- Controls behavior autonomously based on external inputs and internal states
- Metamorphosis from a computer to global machine (sometimes nearly invisible)
- Technical view :
- Systems consist of a stack of different pieces (hard and software)
 - Increasingly delegation to software -> virtualization, provides flexibility
 - Example car - 2019 VW founded SW company *Car-Software*
- **Everything touched by SW becomes a computer**

Internet / Web: more than Technology

- Economic transformation (companies, markets)
- Social „expansion“
- Law and politics
- Physical spaces
- Psychology

Vilnius



Augsburg



- Internet / Web also rooted in the US counterculture (e.g., Declaration of the independence of the cyberspace), see also (Vardi, 2018)
 - Free information sharing - > huge amount of information and rise of search engines
- To sustain (monetize): advertising based business model, extended by
 - **Personalization** (*"If we have 4.5 million customers, we have 4.5 million stores"* J. Bezos)
 - **Recommendation** (e.g., Amazon Marketplace and its 350 Mio products)
 - **Emotional engagement** to optimize click rates
 - Changing user behavior following recommendations (Russell, 2021)
- Pay with our data -> surveillance (Zuboff, 2019)
- From **citizen** to **consumer** (Stanger, 2020)
- We are **user**, **product** and **producer** (nearly an economic perpetuum mobile)

- We seem to have absolute individual freedom
- Individual freedom as delusion: *what I see, what I get, what I do* is defined by the distance measure of a similarity matrix
- Algorithmic interdependence between the individual (and its self-referentiality) and the general/common
- But also this “common” is a delusion; it is an aggregation of previously individualized views
- Algorithm (mostly unknown) instead of conscious decision of the human being
- **Both, individual freedom and the “common”, a delusion?**
- Vision of individual freedom and democratic participation -> the system is failing (Berners-Lee, 2018)

Web Business Landscape

- Google 1998
 - YouTube 2005
 - Skype 2003
 - Amazon 1994
 - Twitter 2006
 - Facebook 2004
 - LinkedIn 2003
 - Uber 2009
 - Airbnb 2008
 - Instagram 2010
-
- Platform companies, basis: user network and information from / about users as well as markets
 - Virtualization of business (not only technology)
 - Active in several markets with shares of 50-90%, very profitable
 - Innovation from outside, permanently new "players"

Platforms and Market Capitalization

March 2022, Mio USD

Apple	2,850,000
Microsoft	2,311,000
Alphabet (Google)	1,846,000
Amazon	1,659,000
Tesla	1,114,000
Berkshire Hathaway	779,150
Nvidia	684,880
Meta (facebook)	605,250
TSMC	540,670
UnitedHealth	479,830

March 2011, Mio USD

Exxon Mobil	417,166
PetroChina	326,199
Apple Inc.	321,072
ICBC	251,078
Petrobras	247,417
BHP Billiton	247,079
China Construction Bank	232,608
Royal Dutch Shell	226,128
Chevron Corporation	215,780
Microsoft	213,336

List of top publicly traded companies - based Financial Times Global 500, no investment companies

https://en.wikipedia.org/wiki/List_of_public_corporations_by_market_capitalization

Two Sides

- IT keeps the system running
- Important for democratic movements, participation and humanitarian activities

SUSTAINABLE DEVELOPMENT GOALS



Two Sides

Critical issues (mutually dependent)

- Concentration and monopolies in the Web
- Sovereignty – role of states as well as individuals – see Corona Apps
- Echo chambers and fake news – with its impact on political discourse
- AI and decision making (role of humans)
- Privacy and surveillance (Zuboff, 2019)
- Robots and warfare
- Work situation and automation (Casilli 2022, gig economy)

➤ The system is failing – Tim Berners-Lee, 2018

Digitale Humanism – Workshop in 2019

- 100 participants - worldwide – informatics, philosophy, history, anthropology, law, economics, political science, mathematics, sociology
 - Triggered by an Advisory Board Meeting of Informatics Faculty, TUW in 2018
- See. <https://dighum.ec.tuwien.ac.at/>



Popper (1969) “Moral Responsibility of the Scientist”

Digital Humanism

Approach to describe, analyze and, above all, to try to influence the complex interplay between IT and humanity - for a society that fully respects universal human rights

Complex social economic technical process, with its own dynamics

But it is not automatic and “god-given”

VIENNA MANIFESTO ON DIGITAL HUMANISM

- Technology according to our values and needs, we are the designers & developers
- We humans (all) have the freedom, right and responsibility to use our own minds
- We are the authors of our own lives, with personal autonomy and agency
- This is a prerequisite for a democratic society
- Refers – in addition to humanism – to enlightenment (see Nida-Rümelin & Weidenfeld, 2018; or digital enlightenment forum)
- I see DigHum as rational democratic answer to the anything goes paradigm of the Web

VIENNA MANIFESTO ON DIGITAL HUMANISM

- It is a call for reflection and **action**, also a research program
- Core principles (*generic*):

Democracy

- Digital technologies should be designed to promote democracy and inclusion
- Fairness, responsibility and transparency of software programs and algorithms

Regulation

- Action / intervention against tech monopolies
- Decisions affecting human rights must be made by humans

The role of Research, Science, and Academia

- The connection of different scientific disciplines is essential
- Universities (create new knowledge, enhance critical thinking) have a particular responsibility

Education

- Academic teaching needs to combine humanities, social sciences and engineering
- Education on Informatics and its societal impact must start as early as possible

Since then

30 online lectures, four workshops, huge amount of knowledge

Over 70 hours online accessible lectures, will be semantically annotated



Since then - 2

- Lectures on
 - AI and ethics
 - Sovereignty
 - Privacy
 - AI Regulation Europe
 - Automation and Work
 - IT, Democracy and Geopolitics
 -
- Manifesto – signatures from 45 countries, we have 8 languages
- In Austrian government program, and in Viennese government program (incl. “Institute for Digitale Humanism”)
- Poysdorf Declaration on Digital Humanism (Austria, Slovakia, Czech Republic)
- Activities of Austrian Ministries
- Research programs in Vienna
- IWM fellowship program

Since then - 3

- Created an international intellectual interdisciplinary core (authors of manifesto, members of DigHum Program Committee, lecturers)
- *Perspectives on Digital Humanism*, yesterday 199 k downloads
- Roadmap for Research, Innovation and Teaching
- Curriculum activities



Road map

DigHum specific
research /
innovation activities
w.r.t. problem
issues

Problem domains	AI and automated decision making	Labour and work automation	Privacy and security	Platform monopolies	Online media, political discourse and NLP	Digital sovereignty, and sustainability
Research topics						
explainability	x					
transparency	x		x		x	
data privacy			x			
personalisation, including in. recommender systems	x				x	
fairness	x	x		x	x	
accountability of systems and providers	x	x			x	
human control	x	x	x			
AI/human coop. & distribution of power	x	x			x	
norms and ethics	x	x	x		x	x
security			x			x
new regulatory approaches					x	x
DigHum business models						x
resilient systems and algorithms						x
low carbon footprint, sustainability						x
work design and labour policy		x				
content moderation, freedom of speech					x	
productivity paradoxon		x		x		
dependencies measurement (power rel.)		x		x		x
architecture resilience				x		x
distributed vs. centralised approaches				x		x
Software development			x	x		
interoperability			x	x		
open systems, open data, etc...			x	x		

Things are Changing

- Many international civil society based and academic initiatives
e.g. HAI - Human-Centered Artificial Intelligence at Stanford, Center for Humane Technology, Dutch Digital Society, Digital Enlightenment Forum,
- International standardization organizations: e.g., IEEE Software Engineering Standard

On international political level:

- US: several antitrust cases
- Europe: several „acts“ and proposals (Market Act, Service Act, AI regulation, GDPR)
- Specific DigHum activities at EU level - initiated by Austria
- UN / Internet as global public good, OECD's principles on AI, UNESCO, G20 AI principles, Global Partnership on AI, ...

Challenges

- Digital Humanism is a fundamental concept
 - May serve as a European model (vs USA and China) – still valid?
 - But there are also other parts of the world!
- Heterogeneous audience: academia, industry, citizens decision makers, politicians
- Digital Humanism needs a multidimensional framework - challenges on three levels:
 - **Problem areas**
 - **Disciplines**
 - **Activities**



Pandora, John Gibson, 1899

John von Neumann (1955) : Can we survive technology?
"The great globe itself" is in a rapidly maturing crisis
.... the difficulties are due to an evolution that, while
useful and constructive, is also dangerous.
**Can we produce the required adjustments with the
necessary speed?**

Conclusions

- IT will not stop
 - Further technology and „service“ waves - > increasing complexity (both structure and technology) and continuing transformation processes
- Technology is not „god given“, primacy of politics
- Responsibility of scientists and citizens

Thank you!

<https://dighum.ec.tuwien.ac.at/>