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AI Principles in Education

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• "Humans should be worried about the threat posed by artificial intelligence." ~Bill Gates.





Also AI:

THEM: AI will take over the World



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https://www.ebau msworld.com/pict ures/27-freshmemes-of-thedankestkind/87143448/



• UP AI *Definition*: Artificial Intelligence is the discipline concerned with the *design and construction* of **intelligent** systems that **perceive**, **reason** out, **formulate** a decision, and **act** in an environment to achieve a set of measurable goals.







https://www.naturalnews.com/2020-10-01coronavirus-vaccine-trial-subjects-report-extremeexhaustion-headaches-cracked-tooth.html

Principles of Responsible AI for Education

- Human agency, oversight, and accountability.
- Fairness, Non-Discrimination, and Collaboration.
- Explainability, Interpretability, Traceability, and Transparency
- Safety, Security and Robustness
- Well-being of society and environment.



Human Agency, Oversight, and Accountability.

- Al development should be driven by ethical considerations and respect for human rights.
- The technology should serve the best interests of individuals and society as a whole, avoiding any harm or exploitation of users.
- Human-centered design should be at the core of AI development, focusing on user needs, values, and experiences to ensure AI technologies are beneficial and align with human values.



Auernhammer, J. (2020) Human-centered AI: The role of Human-centered Design Research in the development of AI, in Boess, S., Cheung, M. and Cain, R. (eds.), Synergy - DRS International Conference 2020, 11-14 Augusta Held online: https://doi.org/10.21606/drs.2020.282

Human Agency, Oversight, and Accountability.

- Data governance and privacy protection should be given utmost attention.
- Accountability is crucial: the ethical and legal obligation of individuals, organizations, and institutions involved in the development, deployment, and use of AI and AI-powered systems to take responsibility for the consequences of their actions.



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Fairness, Non-Discrimination, and Collaboration

- To the extent possible, AI should be assessed for potential bias and discrimination, especially in the data, models, and algorithms that are used.
- Collaborative procedures should be in place to proactively identify, mitigate, and remedy these potential harms.



Explainability, Interpretability, Traceability, and Transparency.



Explainability, Interpretability, Traceability, and Transparency.

- The development, deployment, and use of AI systems should build trust between users and these systems. Individuals should be informed as much as possible when AI-enabled tools are being used.
- The methods should be explainable, interpretable, or traceable, to the extent possible, and individuals should be able to understand the potential range of AI-based outcomes, ways to challenge those, and meaningful remedies to address any harms caused.
- Interpretable models should be preferred that can be constructed to achieve the same level of intended

performance. In high-stakes situations, AI explainability is a



must.

Safety, Security and Robustness

- Al systems must function in a secure and safe way.
 Potential risks should be continually assessed and managed.
- Protective systems must be robust as compromising safety and security is never acceptable.
- In this context, robustness refers to the capacity of AI systems to endure and surmount adverse circumstances, including digital security threats.



Safety, Security and Robustness

- Legal and Regulatory Compliance
 - Data Privacy Law
 - Fairness and Non-Discrimination
 - Consumer Protection Laws
 - Existing consumer protection laws apply to AI-driven products and services. Businesses must ensure that AI systems do not mislead consumers, provide accurate information, and fulfill their intended purposes. Transparency and clear explanations of AI-driven decisions can aid in compliance with consumer protection laws.
 - Intellectual Property and Copyright
 - Proactive Risk Assessments



Safety, Security and Robustness

- Sustainability in AI
 - Energy Efficiency
 - Responsible Data Practices
 - Sustainable Infrastructure
 - Life Cycle Assessment
 - Pollution





https://www.chinadaily.com. cn/a/202303/31/WS642636 b9a31057c47ebb7952.html

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The Role of Government and Academia

- Government's Role
 - a. Setting Legal Frameworks
 - b. Defining Ethical Guidelines
 - c. Enforcing Compliance
 - d. Research and Innovation
 - e. International Collaboration
- Academia's Role:
 - a. Responsible AI Development and Research
 - b. Self-Regulation
 - c. Proactive Risk Assessment
 - d. Consumer Education
 - e. Collaboration with
 Governments
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- Industry's Role
 - a. Al Development
 - b. Self-Regulation
 - c. Open Data
 - d. Industry Cases and Best Practices
 - e. Collaboration with
 Industry and Government



 For the very reason for its use, deployment, and development, AI should be for common good and benefit the humanity in general by fostering inclusive economic growth, social equity, sustainable development, enhancement of human capital, political empowerment, enrichment of culture, <u>elevation of education</u>, and enhancement of human well-being, while protecting the environment.



Al Programs @ UPD

- First graduate programs in AI in the country
- Collaboration between IE, CS, EEE and ChE Departments
- MEng Al Program
 - A 2-year full-time/3-year part-time professional masters program under the College of Engineering
 - Total of 31 units with an applied capstone project requirement

PhD in Al Program

A new 3 or 4-year full-time/ 6 or 10-year part-time research—based
 PhD program

PhD in DS Program

- A new 3 or 4-year full-time/ 6 or 10-year part-time research—based
 - PhD program co-offered with the *Department of Industrial Engineering* and Operations Research

Selected Research

• Fish-I Project (Prof. Pros Naval)

Vehicle Route Optimization (Prof. Rex Jalao)



Laboratories

- 24 Nvidia A100 GPU Servers
- High Performance Computing Laboratory







Invest in AI now!



Thank You Very Much

Questions?

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