
RESEARCH PRESENTATION:
EVOLUTION OF TECHNOLOGY

Luis G. B. A. Faria
Student ID A00187785
Human-Centred Design
Prof Dr. Omid Haas



Artificial Intelligence RECOMMENDATION SYSTEMS

Moral and Ethical Impact
& Immediate Effects on
Human Knowledge

October, 2025

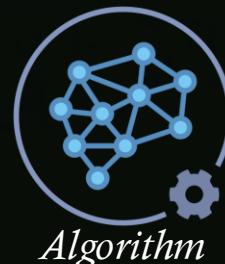
CONTEXT

What are **AI Recommender Systems**?

- Machine Learning Algorithms → Personalize content feeds
- Use user data (watch time, themes, likes, comments) → optimize predictions
- Accessibility: simplifies discovery, removes need to search



User



Algorithm



Personalized feed
+ infinite scroll

ANALYSIS

Design

Human-Centered

- **Norman's Principles:**
 - visibility (clear feedback in feed),
 - mapping (scroll = next video),
 - feedback (likes/views).
- **Affordances abused:**
 - infinite scroll becomes addictive.
- **Gee's Guidelines:**
 - stimulation yes, but ergonomics & wellbeing ignored.

Moral

Wellbeing & Addiction

- Evidence: Problematic TikTok Use (validated scales).
- Short-form linked to attention reduction.
- WHO: sedentary guidelines → higher screen time = obesity/health risks.

Ethical

Governance & Data

- EU fines for data/privacy violations.
- Algorithm opacity → filter bubbles, misinformation.
- Global bans on government devices = trust issue.

IMMEDIATE EFFECTS

CAUSE | EFFECT

- 1B+ adoption: content discovery without search.
- Changed knowledge flows: “micro-learning” formats.
- Industry response: IG Reels, YT Shorts - all adopted the tech.

SOCIETAL SHIFTS

- New influencer economy
- Meme culture dominance
- Commerce: live shopping integrations
- Negative: reduced face-to-face, sedentary lifestyles.

LONG TERM EFFECTS

- democratized creativity, cultural exchange
- attention fragmentation, rising anxiety, global mistrust in platforms

Paradox of Technology (Norman):

"More power = More complexity and Risks."

DESIGN RECOMMENDATIONS

Wellbeing by Default

integrate time reminders and mindful use features like feed pacing and high-usage threshold.

Content Diversity

ensure exposure to varied viewpoints through randomization and diversity controls sliders.

Data Transparency / Control

provide clear audits like 3rd party audits, parental tools, and localized storage options.

TAKEAWAYS

- Recommender systems are the **technology that drives TikTok's success and controversy.**
- They exemplify both **human-centered design brilliance + ethical challenges.**
- The future of HCD depends on designing algorithms for wellbeing, not just engagement.

REFERENCES

- World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour*. [https://www.who.int/...](https://www.who.int/)
- Bull, F. C., et al. (2020). 2020 WHO guidelines... *Int. J. Behav. Nutr. Phys. Act.*, 17, 141. <https://doi.org/10.1186/s12966-020-01037-z>
- Aykut, G., et al. (2023). Reliability and validity of the problematic TikTok Use Scale... *Frontiers in Psychiatry*, 14. <https://doi.org/10.3389/fpsyg.2023.1068431>
- Haliti-Sylaj, L., & Sadiku, A. (2024). Impact of short reels on attention span... *Eurasian Journal of Applied Linguistics*, 10(3), 60–68.
- Zhang, X., et al. (2024). Mobile phone short video use negatively impacts attention... *Frontiers in Human Neuroscience*. <https://doi.org/10.3389/fnhum.2024.1383913>
- Shojaati, M., et al. (2022). Screen time increases overweight and obesity risk among adolescents: **Systematic review & meta-analysis**. *BMC Primary Care*, 23, 220. <https://doi.org/10.1186/s12875-022-01761-4>
- Wang, Y., et al. (2022). Effect of screen-time intervention on obesity... **Meta-analysis of RCTs**. *Preventive Medicine*. <https://doi.org/10.1016/j.ypmed.2022.107021>
- Bountouridis, D., et al. (2023). Filter bubbles in recommender systems: **Systematic review**. *arXiv:2307.01221*.
- Nielsen, R. K., et al. (2022). **Echo chambers & polarisation**: Literature review. Reuters Institute. <https://doi.org/10.60625/risj-etxj-7k60>
- Reuters. (2025, May 2). TikTok fined €530m... (EU DPC).

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A large, semi-transparent orange watermark containing the text "Thank You" in white, bold, sans-serif letters is centered over the background image.

Thank You

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