**Title (no longer than 8 words):**

* Naturalness of/in voices - …
* - trends, perspectives and challenges
* Naturalness in voices – from practice to theory (?) / Linking practice to theory
* Keeping up with artificial agents?
* Naturalness of voices – navigation in an artificial world
* Naturalness of voices – from human to artificial (expression/features/dimensions/aspects)
* Linking human and artificial agents
* Naturalness in a world full of artificial agents

**Authorship (up to three):**

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Ggf noch jemand?

**Keywords (two to six)**

* Naturalness
* Voices
* Synthesized
* deepfakes
* human-robot interaction
* human-likeness
* distortion

**Abstract (100 - 120 words)**  - first draft

[Why important]  
Perceived naturalness of a voice is a prominent feature which affects our interaction with both human and artificial agents. In humans, naturalness can be affected by voice distortion or transformation. In artificial agents, its tremendous importance has been acknowledged through multiple efforts to create and constantly improve artificial voices to resemble human vocal expression.

[Which problems]  
Despite its importance, (1) conceptual underspecification, (2) inconsistent operationalization, (3) lack of exchange between research on humans and artificial agents and (4) insufficient anchoring in voice perception theory has precluded a systematic understanding of voice naturalness in both production and perception.

[Our contribution]  
In this work, we develop a concise definition of naturalness and propose a conceptual framework rooted both in empirical findings and theoretical models. We further review the current insights into voice naturalness by pooling evidence from a wider interdisciplinary literature. Finally, we identify the core gaps in our current understanding of voice naturalness and discuss the theoretical, ethical and empirical implications/responsibilities in light of the fast-developing intelligent artificial systems.

**Figure 1:** different conceptualizations of voice naturalness

**Figure 2:** Overview over studies?

Review of Studies:

* Field
* Impact
* Year
* Conceptualization of Naturalness
* Operationalization of Naturalness

**Box 1:**

The more the better? Does Naturalness equal voice quality?

**Box 2:**

Pooling insight from different research domain – the intruiging role of fundamental frequency variation

**Glossary:**

* Uncanny Valley
* Voice Morphing

**Outstanding Questions:**

* Interaction of naturalness with other voice features
* Neuroscientific research

**Brainstorming Text Snippets**

**Main points:**

1. Status quo: rapidly evolving market of synthezied voices, together with all challenges and problem
2. Naturalness is super relevant; in

**Main Text ideas:**

* intro: AI is developing very fast, machines can speak now (give very catchy and current example)
* naturalness is everywhere

**The Core Problem:**

Different Sound characteristics affect how we perceive and interact with other agents through the vocal modality. One of these characteristics if the naturalness of a voice. The importance of a natural sounding voice has been acknowledged across several

In a modern world full of artificial devices, it has become a key interest and challenge to artificial voice synthesis, with the aim to create an output which resembles human vocal expression.

But vocal naturalness has been studied in human voices before, in the context of

Voice distortion and voice transformation.

In humans, the importance of naturalness has been highlighted in the context of speech distortion and speech transformation.

Its tremendous importance has been acknowledged through (1) multiple efforts to create and constantly improve artificial voices to resemble human vocal expression.

Across research domains,

precluding a systematic understanding of voice naturalness in both production and perception.

Across research domains, naturalness