

The background of the slide is a solid blue color with a repeating pattern of stylized harps in a lighter blue shade. The harps are scattered across the frame, some appearing larger and more prominent than others, creating a textured, musical backdrop.

# Humans vs. AI: Can we tell the difference musically?

Edward W [REDACTED]

Onsite Advisors: Dr. Winslow and Dr. Martin

External Advisor: Dr. B [REDACTED]

May 7, 2024



# Research Questions



# Research Questions

Can people tell the difference between AI music and manmade music?

Does increased knowledge of music theory facilitate the identification of AI music?

Does AI music evoke weaker emotional responses in people compared to original compositions?



# Significance





# Significance

AI products are becoming indistinguishable from human products

AI trained off human artists



# Prior Research

The background of the slide is a solid blue color with a repeating pattern of stylized, light blue pianos. The pianos are depicted from a three-quarter perspective, showing the keyboard and the body of the instrument. They are scattered across the slide, some appearing larger and more prominent than others, creating a sense of depth and movement.

# Prior Research

Lots of variance between musical genres and eras

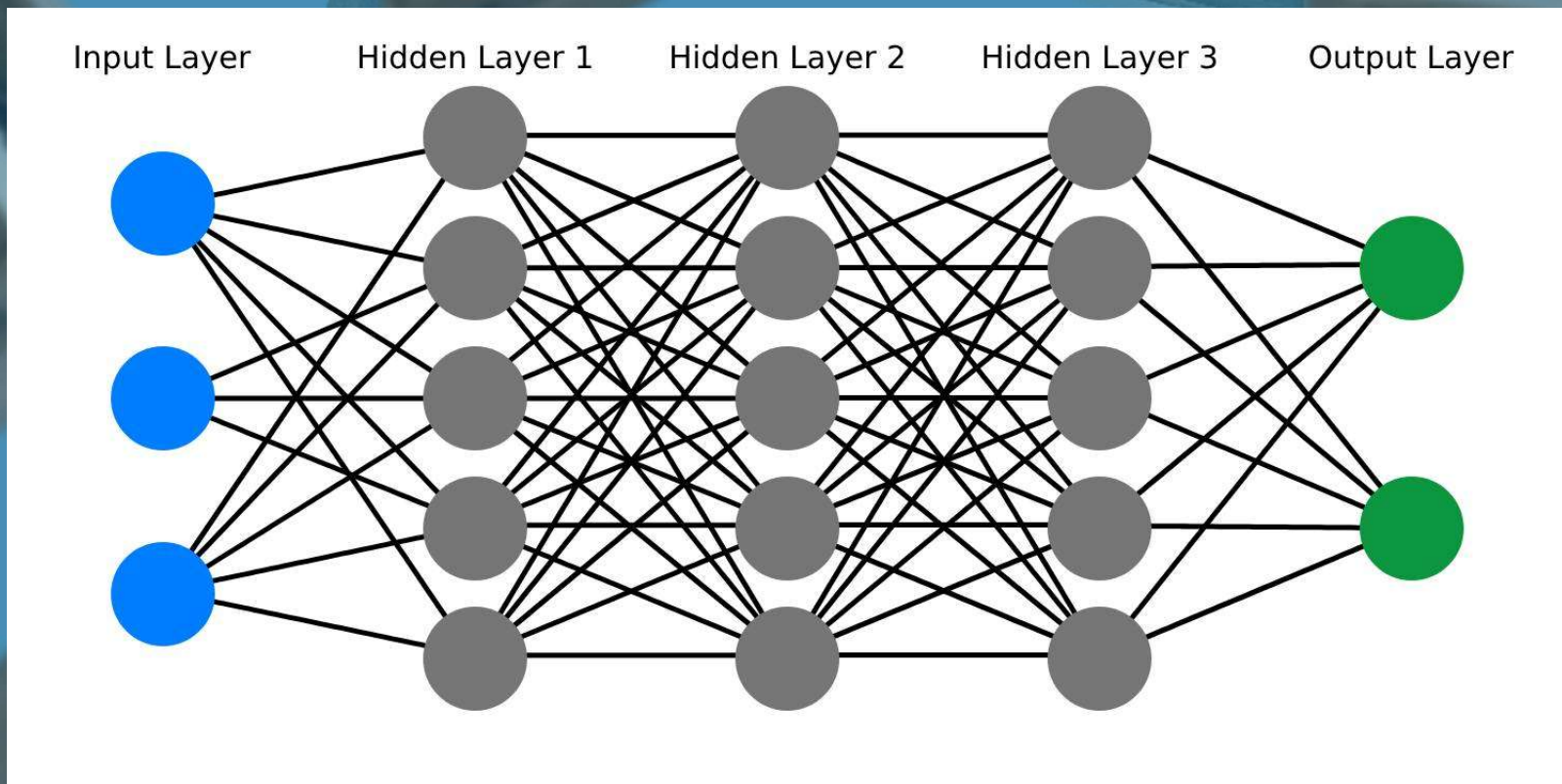
Trouble conveying emotions in its music

# Prior Research





# Prior Research





# Methodology



# Methodology

**10 pieces: Baroque, Classical, Romantic, Contemporary (piano),  
Contemporary (cello), Jazz, World, Pop, Ambient, Personal Composition**

**AI music generated with Allegro Music Transformer (AMT)**



# Methodology

Original Seed Composition





# Methodology

Original Seed Composition



OG



AI



ME



# Methodology





# Challenges

# Challenges

Had to switch out MuseNet with AMT

Google Colab has usage limits

Had to code survey in HTML

Survey went out a week late

Unchecked survey biases

Form went offline

Processing data in Excel





# Findings

# Findings

62 responses

Average score: 3.323

Worse score: 0

Best score: 7

SD: 1.352

1<sup>st</sup> Quartile: 2

Median: 3

3<sup>rd</sup> Quartile: 4

# Findings

	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>OG</b>	27.42%	30.65%	27.42%	30.65%	24.19%	30.65%	30.65%	41.94%	35.48%	40.32%
<b>AI</b>	32.26%	38.71%	20.97%	33.87%	41.94%	45.16%	33.87%	24.19%	37.10%	24.19%
<b>ME</b>	40.32%	30.65%	51.61%	35.48%	33.87%	24.19%	35.48%	33.87%	27.42%	35.48%
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>OG</b>	35.00%	40.00%	30.00%	30.00%	35.00%	15.00%	40.00%	55.00%	35.00%	40.00%
<b>AI</b>	25.00%	35.00%	30.00%	35.00%	25.00%	65.00%	30.00%	20.00%	35.00%	30.00%
<b>ME</b>	40.00%	25.00%	40.00%	35.00%	40.00%	20.00%	30.00%	25.00%	30.00%	30.00%
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>OG</b>	50.00%	33.33%	41.67%	25.00%	33.33%	8.33%	33.33%	66.67%	33.33%	50.00%
<b>AI</b>	25.00%	33.33%	33.33%	33.33%	33.33%	83.33%	25.00%	8.33%	41.67%	16.67%
<b>ME</b>	25.00%	33.33%	25.00%	41.67%	33.33%	8.33%	41.67%	25.00%	25.00%	33.33%



# Findings

	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.145	3.000	3.435	2.516	2.113	3.532	2.871	3.306	1.887	2.565
<b>OG</b>	2.355	2.774	3.581	2.774	1.952	3.371	2.903	3.145	1.903	2.597
<b>AI</b>	1.855	2.839	3.355	2.484	1.774	3.403	2.839	3.258	2.129	2.516
<b>ME</b>	2.258	2.710	3.194	2.210	2.032	3.532	2.694	3.290	2.903	2.452
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.70	3.45	3.70	2.85	2.30	3.85	3.35	3.40	2.20	2.85
<b>OG</b>	2.95	3.15	3.80	3.30	2.20	3.80	3.25	3.20	2.30	3.00
<b>AI</b>	2.45	3.30	3.55	2.75	1.90	3.60	3.30	3.30	2.35	2.95
<b>ME</b>	2.75	3.15	3.45	2.45	1.95	3.80	3.15	3.30	2.25	2.05
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.67	3.58	3.92	3.17	2.25	4.25	3.33	3.50	1.92	2.75
<b>OG</b>	3	3.17	3.83	3.50	1.83	4.08	3.25	3.08	2.08	2.92
<b>AI</b>	2.33	3.33	3.75	3	1.67	3.83	3.42	3.25	2.33	2.92
<b>ME</b>	2.75	3.00	3.58	2.58	1.83	4.08	3.17	3.00	2.08	2.75



# Findings

	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.032	1.274	1.258	1.742	2.097	1.210	1.565	1.306	2.323	2.032
<b>OG</b>	1.968	1.403	1.371	1.597	2.435	1.242	1.484	1.274	2.452	2.000
<b>AI</b>	2.387	1.355	1.290	1.677	2.597	1.210	1.613	1.226	2.145	2.048
<b>ME</b>	1.839	1.419	1.452	1.790	2.048	1.129	1.597	1.290	2.355	2.065
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.10	1.55	1.35	2.15	2.45	1.30	1.50	1.40	2.35	2.05
<b>OG</b>	2.15	1.55	1.55	1.80	2.90	1.40	1.45	1.40	2.35	2.10
<b>AI</b>	2.35	1.55	1.50	2.15	3.05	1.30	1.55	1.45	2.20	2.20
<b>ME</b>	2.15	1.60	1.65	2.05	2.45	1.25	1.60	1.55	2.25	2.15
	Baroque	Classical	Romantic	Cont. (P)	Cont. (C)	Jazz	World	Pop	Ambient	PC
<b>Seed</b>	2.08	1.50	1.25	2.08	2.75	1.08	1.33	1.33	2.42	2.17
<b>OG</b>	2.25	1.58	1.58	1.75	3.33	1.25	1.33	1.42	2.33	2.25
<b>AI</b>	2.42	1.58	1.50	2.17	3.42	1.17	1.42	1.50	2.08	2.42
<b>ME</b>	2.17	1.58	1.67	2.00	2.83	1.08	1.50	1.58	2.25	2.33



# Next Steps

The background of the slide is a solid blue color with a repeating pattern of stylized, light blue pianos. The pianos are depicted from various angles, some showing the keyboard and others showing the side profile. They are scattered across the entire background, creating a textured, musical theme.

# Next Steps

Look into AI composing without seed compositions

AI in longer form compositions

Other questions: should we even be using AI for creative endeavors?



The background of the slide is a solid, medium-blue color. It is covered with a repeating pattern of stylized, light blue piano icons. The pianos are depicted in various orientations, some facing left, some right, and some slightly angled. They have a simple, clean design with visible keys and a curved body. The text "Final Product" is centered in the middle of the slide in a white, bold, sans-serif font.

**Final Product**



# Acknowledgements

# Acknowledgements

Dr. Winslow and Dr. Martin

Dr. B [REDACTED]

Dr. Green and Dr. Talasek

Mrs. C [REDACTED] G [REDACTED]

Kei S [REDACTED], Sophia G [REDACTED]

Naishya G [REDACTED], Joseph I [REDACTED] K [REDACTED]





# Sources

# Sources

Blume, F. (1970). *Classic and romantic music; a comprehensive survey*. United Kingdom: W. W. Norton. Hardesty, L. (2017, April 14).

Explained: Neural networks. MIT News. <https://news.mit.edu/2017/explained-neural-networks-deep-learning-0414> Mackay, A., & Romanec, C. (2016, December 7).

Baroque Guide. Tafelmusik. <https://web.archive.org/web/20161207213948/http://www.tafelmusik.org/sites/all/themes/tafelmusik/downloads/Baroque> Mahendra, S. (2023, June 13).

Can People Tell the Difference Between Music Created by AI and People?. *Artificial Intelligence +*. <https://www.aiplusinfo.com/blog/can-people-tell-the-difference-between-music-created-by-ai-and-people/> Neely, A. (2019, August 2).

Why the Katy Perry/Flame lawsuit makes no sense. YouTube. <https://youtu.be/0ytoUuO-qvg?si=EgSqwQjIHXd4ICZ> Neely, A. (2022, March 6).

Did Dua Lipa ACTUALLY Plagiarize Levitating?. YouTube. <https://youtu.be/HnA1QmZvSNs?si=0hDQfh-5YyBZN3bk> OpenAI. (2019, April 25). MuseNet. OpenAI Research. <https://openai.com/research/musenet>

Proceedings of the Musical Association. (1893).

United Kingdom: Stanley Lucas, Weber & Company. Rogers, R. (2023, January 21).

How to Spot AI-Generated Art, According to Artists. *Wired*. <https://www.wired.com/story/how-to-spot-generative-ai-art-according-to-artists/> Schwartz, E., Godfrey, D. (1993).

Music since 1945: issues, materials, and literature. United Kingdom: Schirmer Books. Truscott, H. (1961). Form in Romantic Music. In *Studies in Romanticism* (Vol. I, pp. 29–39). essay, Boston University Graduate School



Questions?