



SOPRONI
EGYETEM

LÁMFALUSSY SÁNDOR
KÖZGAZDASÁGTUDOMÁNYI
KAR



A mesterséges intelligencia szerepe a fenntartható gazdasági döntésekben

XVII. SOPRONI PÉNZÜGYI NAPOK

pénzügyi, adózási és számviteli szakmai és tudományos konferencia

Szerkesztők: Széles Zsuzsanna, Szóke Tünde Mónika

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Digital Reality and Identity: An Evolutionary Analysis of Virtual Influencer Lil Miquela

PAULOVICS, Ágnes¹

Abstract: Within the rapidly evolving digital culture, Lil Miquela, an AI-driven virtual influencer, emerged as a novel entity, challenging traditional notions of celebrity and digital identity. An in-depth analysis of her Instagram account is conducted to trace persona development and highlight significant events over the years. Pivotal moments, brand endorsements, and milestones are identified, underscoring her unique digital influence. Audience comments are assessed to gauge diverse reactions, revealing a spectrum from acceptance to skepticism. The findings illuminate the transformative role of synthetic media in today's AI-dominated era, elucidating the blurring lines between virtuality and reality and their multifaceted implications for the digital age.

Keywords: fashion industry, metaverse, synthetic media, influencer

JEL Codes: O33, M31

Digitális valóság és identitás: Lil Miquela virtuális influencer evolúciós elemzése

Absztrakt: A digitális kultúra gyors fejlődésének kontextusában Lil Miquela, egy mesterséges intelligencia által generált virtuális influencer az elmúlt években kihívta a hagyományos felfogásokat a hírességről és digitális identitásról. Az Instagram-profiljának részletes elemzése során bemutatásra kerül személyiségének evolúciója, továbbá meghatározásra kerülnek azok a kritikus események, márkákkal kötött együttműködések és mérföldkövek, amelyek meghatározzák digitális hatását. A közönség visszajelzései szintén elemzés alá kerülnek, melyek egy széles spektrumot mutatnak be az elfogadástól a szkepticizmusig. Az eredmények rávilágítanak a szintetikus média transzformatív szerepére a jelenlegi, mesterséges intelligencia által dominált időszakban, és tisztázzák a virtuális és a valós világ közötti határok elmosódásának komplex hatásait.

Kulcsszavak: divatipar, metaverzum, szintetikus média, influencer

JEL-kódok: O33, M31

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Introduction

In an era marked by rapid technological evolution, it's hard to ignore the transformative forces of Web3, the metaverse, avatars, artificial intelligence, and synthetic media. While these concepts frequently populate tech discussions, deciphering their depth and significance in academic terrain is a venture I'm keen to embark upon. AI-generated virtual celebrities, exemplified by entities like Lil Miquela, further underscore the urgency to understand and critique this digital transformation. Though fragmented studies exist, a holistic review seems overdue.

The aim of the research is to assimilate and critically examine existing literature, academic contributions, and secondary research relevant to Web3, metaverse, avatars, AI, and synthetic media at the beginning, giving a deep literature overview as it is foundational to any research.

The secondary research follows the literature review, which gives an overview of AI-generated virtual celebrities.

The main part of the paper consists of a comprehensive analysis of Lil Miquela, to undertake a year-by-year dissection of this AI-generated virtual celebrity, emphasizing pivotal events, brand affiliations, musical ventures, and other notable endeavors. Analyzing Lil Miquela's trajectory offers insights into the real-world implications, challenges, and opportunities of synthetic media entities in our evolving digital milieu.

Given these goals, this study seeks to address the following overarching question and hypothesis:

Q1: What are the most significant deals or partnerships that Lil Miquela has announced or showcased on her Instagram?

H1: The most significant deals or partnerships showcased by Lil Miquela on her Instagram are likely associated with high-profile brands in the fashion, music, and technology sectors, which align with her digital persona's key areas of influence and engagement.

Literature review and secondary research

Web3

Web3 presents a transformative blueprint for the digital infrastructure. Its overarching objective encompasses the decentralization of digital power, currently consolidated within behemoth corporate entities, aiming for a more egalitarian digital environment that amplifies user-centric agency (Luong, 2022).

Web3 is characterized by distinct attributes, including:

- The reconceptualization of digital ownership, emphasizing the equitable distribution across its diverse ecosystem of users.

- Unhindered accessibility, thus fostering an inclusive digital landscape.
- Cryptocurrency-driven transactional mechanisms to departure from traditional fiscal infrastructures, accentuating digital financial autonomy.
- Absence of centralized trust dependencies thus propounding reliance on algorithmic and incentivized trust protocols (Ethereum, 2022).

With technological advancements, fashion brands are aligning their strategies with emerging trends to remain relevant and enhance the consumer experience. In this regard, five principal categories of digital integration within the fashion domain merit attention:

- **Metaverse Presence:** As the boundaries between the physical and digital realms blur, the concept of a “metaverse” – a collective virtual shared space – has gained traction. For the fashion industry, this entails establishing a virtual presence, often realized through digital showrooms, virtual trial rooms, or immersive brand experiences.
- **NFTs and Digital Goods:** Non-fungible tokens (NFTs) represent unique digital assets verified using blockchain technology. In the fashion sphere, NFTs manifest as collectible digital attire, accessories, or brand memorabilia.
- **Digital Fashion:** Digital fashion pertains to the creation and showcasing of clothing in a purely virtual space. This realm grants designers the latitude to conceive designs unfettered by physical manufacturing constraints.
- **Traceability and Authenticity:** With a rising consumer emphasis on sustainability and authenticity, blockchain technology’s deployment ensures product traceability from source to sale.
- **Accepting Crypto Payments:** With cryptocurrencies becoming mainstream financial instruments, their integration as legitimate payment methods is an evolutionary step for forward-thinking brands (Paulovics, 2022).

Metaverse

Diving into one of the five principal categories of Web3, the Metaverse has emerged as a technology with immense potential, and has been widely acknowledged for its transformative capabilities (Hwang & Chien, 2022). It represents a new digital frontier that could enable new forms of creativity, expression and communication (Faughnder, 2022).

The concept of the metaverse has gained popularity as a potential driver for the shift from the traditional to the digital economy, with the gaming industry providing a strong foundation (Cerasa et al., 2022). The Metaverse has been hailed as the future of social interaction, representing a virtual universe that allows people to exist and coexist within predetermined rules set by the creators

(Farjami et al., 2011). The Metaverse extends beyond Augmented Reality (AR) and Virtual Reality (VR) technologies, encompassing a larger and more complex virtual space with manifold possibilities for exploration and interaction (Park & Kim, 2022). Metaverse is a virtual world developed to allow the creation of virtual assets and experiences and its development depends on multiple technologies, including 5G, virtual reality, holograms, and advanced processors (Cheong, 2022).

In order to facilitate secure economic activities and prevent unauthorized modifications to personal property and logs within the Metaverse, decentralized technologies such as blockchains are indispensable (Min & Cai, 2022). The Metaverse holds the potential for the integration of wearable devices, enabling users to benefit from a more immersive and sensory experience (Cipresso et al., 2018). Metaverse is the next generation of the Internet, where digital assets are linked to physical assets, and the identity is persistent. Additionally, metaverse enables a new generation of applications and services that provide more immersive and user-centric experience than what is possible today (Sinha, 2022). The metaverse is a technological innovation that creates a unique hybrid environment that people can interact with and explore. It strives to emulate the way our brains work by predicting the sensory outcomes of users' actions and displaying them in the same way that our brains would expect in the physical world. This results in a highly immersive experience that blurs the boundaries between the digital and physical realms (Riva et al., 2018; Riva & Wiederhold, 2022). Ball (2020) emphasizes as well that a genuine metaverse would integrate the physical and virtual worlds, feature a full-fledged economy, and prioritize interoperability, allowing avatars and their possessions to transition seamlessly between different parts.

Avatars

Avatars serve as digital representations of users in the metaverse, actively interacting and communicating with other avatars (Kanematsu et al., 2022) thus playing a pivotal role in shaping the virtual ecosystem. As users' primary identity and presence within the metaverse, avatars not only allow for individual expression but also drive economic activities. They can be adorned with virtual goods, imbued with skills or attributes, and even participate in digital commerce and interactions. As the metaverse continues to evolve, avatars will undoubtedly remain at the heart of its economy, influencing trade, social dynamics, and user engagement.

For the metaverse to have a physical impact on humans, technology must permit signals from avatars to be relayed back to the human brain (Bindra, 2020). Elon Musk's Neuralink recently showcased a monkey playing a video-game using an implanted brain-chip, indicating the possibility of brain signals

controlling external devices (R. Chang, 2021). The feasibility of this concept is supported by advancements from the neurotech startup, Synchron, which offers less invasive implants compared to Neuralink and has obtained authorization for clinical trials on human subjects, extending beyond mere animal testing (Robitzski, 2021).

Artificial Intelligence

Although the Web3 and its technologies provide fashion brands with a wide possibility spectrum for realizing new projects, the increase of Artificial Intelligence (AI) applications and usage in the fashion industry must be emphasized. AI is an important building block for the metaverse presence, both for the Avatar creation and their automated actions and identity creation.

Artificial Intelligence (AI) has garnered various characterizations that delve into its capabilities, scope, and mechanisms. A close examination of three seminal definitions reveals both convergence and divergence in how AI is conceptualized.

Kaplan and Haenlein's view hones in on the autonomous attributes of AI, highlighting it as "a system's ability to correctly interpret external data, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation" (Kaplan & Haenlein, 2019:1). Their emphasis on "flexible adaptation" and data interpretation signals a perspective rooted in AI's practical and dynamic applicability.

Contrastingly (Poole & Mackworth, 2010:3), offer a broader canvas, framing AI in terms of the synthesis and study of computational entities. They assert that AI is "the field that studies the synthesis and analysis of computational agents that act intelligently." This definition is further enriched by outlining the criteria for "intelligence": appropriateness of actions, adaptability, experiential learning, and judicious decision-making within given constraints. Thus, while Kaplan and Haenlein focus on system capabilities, Poole and Mackworth provide a layered exploration of what it truly means for an agent to be "intelligent".

Russell and Norvig present AI as "the study of agents that receive percepts from the environment and perform actions. Each such agent implements a function that maps percept sequences to actions, and we cover different ways to represent these functions, such as reactive agents, real-time planners, and decision-theoretic systems" Russell (2010:VIII). This perspective is notably comprehensive, encapsulating the agent's interaction with the environment and the diverse modalities of its representation.

In distilling these definitions, one discerns a continuum: from the practical functionalities of AI systems to the philosophical underpinnings of "intelli-

gence”, and finally, to the multifaceted representations and interactions of intelligent agents. Together, they paint a holistic picture of AI, emphasizing its dynamic nature, adaptive prowess, and the depth of intelligent behavior.

Synthetic Media

Synthetic media is an emergent form of virtual media predominantly fabricated through artificial intelligence (AI) techniques. It stands out for its high realism and immersion, often becoming indistinguishable from real-world media, thereby posing challenges in discerning its artificial nature (Synthesia.io, n.d.). Historical antecedents trace back to algorithmic and generative experiments of the 1950s and 1960s. Significant advancements include the 1997 Video Rewrite program, which was later applied in blockbuster movies (van Rijmenam, 2022). A hallmark of synthetic media is its deep learning foundation, particularly through Generative Adversarial Networks (GANs) (van Rijmenam, 2022). GANs constitute two neural networks: one fabricates images based on real photos, and the other discerns the authenticity of the generated image (van Rijmenam, 2022). The output from GANs often exhibits striking resemblance to genuine photos, making the synthetic media almost indistinguishable (Bhat, 2023). In essence, AI's contemporary capabilities have surpassed mere data interpretation, enabling machines to undertake tasks that were erstwhile considered untenable (van Rijmenam, 2022).

The spectrum of synthetic media encompasses various modalities:

- Text-based synthetic media involves the generation of coherent written content using machine learning (ML) and AI algorithms, particularly harnessing natural language processing (NLP) tools.
- Audio-based synthetic media (Text-to-speech) converts written text into speech, capturing the intricacies of human vocal patterns.
- Image-based synthetic media generates visual content from varied data inputs, leveraging NLP, computer vision, and advanced graphical techniques.
- Video-based synthetic media allows users to create avatars or digital personas used within the fabricated video content (Bhat, 2023).

Synthesia defines additional categories like AI influencers, mixed reality, and face swap (Synthesia.io, n.d.). AI-generated virtual celebrities are of high priority for the fashion industry. Therefore, a subchapter is dedicated to this topic and no additional explanation about them is provided here.

The utilization of synthetic media offers a wide range of benefits:

- Rapid Production with Minimal Human Intervention: Synthetic media can be developed quickly with negligible human input.

- **Adaptability to Audiences and Topics:** Synthetic media can be tailored to any audience worldwide. Its products can cover various subjects and be adjusted to fit any demographic.
- **Convenience and Dynamics:** Synthetic media is accessible 24/7, thus offering continuous availability. Its dynamic nature also ensures it remains fresh and engaging.
- **Versatility in Output:** The medium is expansive in its output, encompassing writing, music, drawings, paintings, voice, or visuals. This flexibility permits a diverse range of media formats and ways of storytelling, fostering creativity.
- **Broad Applications:** Owing to its adaptability, synthetic media is employed across numerous platforms and industries, including apps, websites, gaming environments, VR/AR experiences, marketing, education, journalism, entertainment, and arts.
- **Illusion of Authenticity:** Synthetic media can effectively simulate authenticity, allowing businesses to resonate with audiences without incurring the costs of hiring actors or professional photographers and videographers).

On the other hand, synthetic media also has its downsides and presents several dangers:

- **Lack of Control:** Given the predominant role of AI technology in generating synthetic media, there's less control over the quality, appropriateness, and user experience. This poses risks for brands and creators who might inadvertently spread misleading or inappropriate content.
- **Trust Issues with Deepfakes:** Deepfake technologies are becoming notorious for spreading misinformation. This has created significant trust issues, as the public becomes wary of media that might deceive or mislead them.
- **Security Concerns:** There are potential security risks with synthetic media, especially concerning biometric tools like facial or voice recognition software. Synthetic representations could be exploited to bypass these security mechanisms.
- **The Uncanny Valley Phenomenon:** Deep artificial likenesses can appear real but may evoke a sense of unease in users. This phenomenon can detract from the user experience, making it less engaging.
- **Debate Over Artistry and Craftsmanship:** There is an ongoing debate about the absence of human artistry in AI-generated media. Critics argue that machine-generated music, paintings, and other forms of creative expression lack the soul and craftsmanship inherent in human-made art).

Influencer

Companies often use famous faces in ads to attract more customers. Many believe that if customers see a familiar and admired face promoting a product, they might be more inclined to buy it (Nyikos, 2020). This phenomenon is called influencer marketing. It involves using popular internet figures, that are often seen as more relatable and trustworthy by their audiences (Papp-Váry, 2021).

Beyond just the allure of a familiar face, there's a deeper psychology at play. The public often places a high degree of trust in celebrities and influencers due to their perceived expertise or authority in certain areas, whether it's fashion, technology, or lifestyle choices. When these personalities promote a product, their followers might be more inclined to trust the recommendation and consider purchasing it (Papp-Váry, 2021). Moreover, celebrities and influencers, with their massive online presence, have the potential to dramatically increase the visibility of products, particularly in saturated markets where it's challenging for brands to stand out. Their endorsements often resonate with audiences because they provide a human and relatable touch to the brand messaging.

This strategy's effectiveness is highlighted by research on which types of promotions people trust. A study in Hungary by Nielsen found that people tend to trust recommendations from friends the most, followed by online reviews. Traditional ads, like those on TV, come after these more personal forms of recommendation. This shows that endorsements, especially from influencers, can be a powerful tool in advertising (Papp-Váry, 2020). The changing landscape of media consumption further underscores the value of influencer marketing. As more people shift their attention to digital platforms, influencers have become an essential bridge between brands and potential customers in the online space. In an era where traditional advertising methods are often met with skepticism, these trusted figures offer an authentic voice that can significantly sway consumer perceptions and behaviors.

Nyikos, after reviewing various studies, found several reasons why companies use celebrities in their campaigns. These celebrities can make the brand more popular and create positive feelings towards it. They can introduce something fresh to the brand's image, make ads more engaging, help with brand recognition, and ultimately drive sales (Nyikos, 2020). In essence, by leveraging the power of celebrity and influencer endorsements, brands not only get the immediate benefit of increased visibility but also enjoy long-term advantages such as enhanced brand loyalty and customer engagement.

AI-generated virtual celebrities

Virtual influencers, also referred to as virtual personas, digital influencers, AI influencers, or CGI influencers, are fictional computer-generated characters designed for various marketing-related activities. Most of these influencers are created using sophisticated techniques of synthetic media like motion capture, computer graphics, and AI tools, enabling them to replicate human behaviors in realistic settings (Eliçık, 2022; Nguyen, 2023). These influencers, although not yet fully autonomous AI entities, are poised to make that transition in the near future (Eliçık, 2022). As they increasingly interact with the world from a first-person perspective, they offer unique engagement opportunities for brands and audiences alike (Nguyen, 2023).

Though virtual influencers might seem like a product of recent technological advancements, the concept is not entirely new. Kyoko Date, a virtual Japanese popstar, emerged in 1996 (Nguyen, 2023). Today's proliferation of virtual influencers owes much to technological breakthroughs that allow for more realistic and customizable avatars. On platforms like Instagram and YouTube, virtual influencers, or VTubers as they are called on YouTube, are garnering significant attention. An instance of early VTubing can be traced back to 2011 with YouTuber Ami Yamato using a 3D animated avatar (Rozema, 2022).

There are currently over 150 virtual influencers online, with some amassing millions of followers (Eliçık, 2022; Kuch, 2022). The high degree of customization offered by virtual influencer technology ensures that they can be tailored to appeal to specific target audiences (Nguyen, 2023). Notably, in Asian markets, virtual influencers have become major marketing tools. For example, research indicates that nearly two-thirds of Chinese internet users follow computer-generated celebrities (Kiger, 2023).

The creation and management of virtual influencers often involve teams of 3D artists, AI experts, and strategists. These creators meticulously design the influencer's appearance, personality, interactions, and content, shaping them to align with desired branding or marketing objectives. The earnings garnered by virtual influencers from collaborations and endorsements go to the companies or creators behind them (Mosley, n.d.).

With AI technologies maturing, there's a growing emphasis on making virtual influencers more interactive. For instance, Serah Reikka, a semi-autonomous AI, evolves based on algorithms and can generate content, albeit at a slow pace for now (Kiger, 2023). As these technologies advance, real-time interactions between virtual influencers and humans may become a reality, potentially reshaping online engagement paradigms.

There are three predominant categories of virtual influencers:

- Non-humans.
- Animated humans.
- Life-like CGI humans (Nguyen, 2023).

Virtual influencers offer a fresh approach to branding and outreach, carrying unique advantages that are reshaping the world of influencer marketing. Here's an overview of the benefits they bring:

- **Reputation Control:** Virtual influencers aren't susceptible to scandals, as seen with celebrities like Wang Leehom and Kris Wu. They offer a risk-free avenue for brands since they operate solely based on computer-generated imagery (Eliacıık, 2022).
- **Engagement:** In the US, 58% of those surveyed were following a virtual influencer, indicating a strong market presence. Notably, virtual influencers are reported to have three times the engagement rate of human influencers (Molenaar, 2022).
- **Cost-Effective:** Virtual influencers, such as Lil Miquela, offer attractive rates for brands in comparison to real influencers who can charge exorbitantly for a single post (Nguyen, 2023).
- **Adaptability and Wide Reach:** Virtual influencers don't age, can be programmed in multiple languages, and have found acceptance in high-profile brand campaigns and celebrity engagements. Their digital nature allows them to reach and appeal to broad audiences. For instance, 54% of UK consumers find virtual influencers appealing).
- **Flexibility and Control:** Brands benefit from increased flexibility and control with virtual influencers. Errors can be quickly rectified without the complexities and delays associated with human errors (Mosley, n.d.).
- **Brand Opportunities:** Virtual influencers offer brands flexibility, brand safety, and innovation. They can be present anywhere, uphold brand values without controversies, and cater to younger audiences who appreciate tech-savvy presentations (Rozema, 2022).

While virtual influencers present numerous advantages, they are not without challenges. Brands diving into this new frontier should be cognizant of potential pitfalls. Here's a closer look at the potential threats and concerns surrounding virtual influencers:

- **Authenticity and Trust Issues:** Collaborating with virtual influencers presents authenticity challenges. Since virtual influencers can't physically test products, they might not be perceived as genuine as human influencers. Research shows that only 12% trust a virtual influencer as much as or more than a human influencer, with varying degrees of trust influenced by the context.

- **Human Touch:** There's a potential lack of human touch with virtual influencers, which can affect brand loyalty. Consumers might be limited in the depth of relationships they can form with non-human entities.
- **Social Issues Engagement:** While people prefer seeing virtual influencers support social causes, only a small percentage would actually engage in a conversation with one. (Rozema, 2022).

Table 1: The most significant virtual influencer accounts

	Year of creation	Creator	Origin	Instagram	Follower counts Instagram	Category
Lu do Magalu	2009	Magazine Louisa	Brasil	@magazineluiza	6.5 Mio.	Life-like CGI human
Lil Miquela	2016	Brud	USA	@lilmiquela	2.7 Mio.	Life-like CGI human
Imma	2018	ModelingCafe	Japan	@imma.gram	398 Tsd.	Life-like CGI human
Bermuda	2016	Brud	USA	@bermudaisbae	240 Tsd.	Life-like CGI human
Blawko	2016	Brud	USA	@blawko22	129 Tsd.	Life-like CGI human
Shudu	2017	Cameron-James Wilson, The Diigital	England	@shudu.gram	241 Tsd.	Life-like CGI human
Kyra or Kyraonig	2022	Himanshu Goel	India	@kyraonig	248 Tsd.	Life-like CGI human
Thalasya Pov	2018	Magnavem Studio	Indonesia	@thalasya_	462 Tsd.	Life-like CGI human
Hatsune Miku	2007	Crypton Future Media	Japan	@colorful_stage_en	246 Tsd.	Virtual singer Animated human
Barbie	1959	Ruth Handler, Mattel	USA	@barbie	3.6 Mio.	Animated human
Anna Cattish	2011	–	Russia	@anna_cattish	462 Tsd.	Animated human
Nobody Sausage	2020	Kael Cabral	Portugal	@nobodysausage	7.4 Mio.	Non-human
Janky & Guggimon	2019	Superplastic	USA	@jankyandguggimon	1 Mio.	Non-human
Zoe Dvir	2019	Zoe01	Israel	@zoedvir	25.4 Tsd.	Life-like CGI human
Any Malu	2015	Combo Estúdio	Brazil	@anymalu_real	614 Tsd.	Animated human

Source: Rasmussen (2022), RED•EYE. (n.d.), Mosley (n.d.), Product Innovation (2019), Virtual Humans (n.d.a), Virtual Humans (n.d.b), Virtual Humans (n.d.c), Virtual Humans (n.d.d), Nguyen (2023)

The realm of virtual influencers is expansive and continuously evolving. Given the sheer number of these digital personalities, it's outside the scope of this research to examine the profile of each. However, to provide some perspective, the most significant virtual influencer accounts based on their follower numbers as of September 26, 2023 had been analyzed. The findings are shown in *Table 1*.

Case Study: Lil Miquela

Within the digital realm teeming with virtual personalities, Lil Miquela has carved out a unique space for herself. Beginning in 2016 and continuing through the years, she embodies a compelling intersection of technology, art, and societal influence. While there are many virtual figures to explore, as visible in the previous table, the decision to delve into Lil Miquela's narrative was grounded in her evident prominence. She's not just an influencer; through her endeavors in music, fashion, and social advocacy, she has become a touchstone for deeper cultural discussions.

Methodologies

Yin (2013) posits that beyond addressing the “what” in research questions, case studies are adept at probing deeper dimensions like the “why” and “how”. Under Yin's classification, there are three distinct types of case studies: exploratory, explanatory, and descriptive. When a researcher is faced with intricate causal scenarios that may be beyond the reach of conventional surveys or experiments, the explanatory approach proves invaluable. Conversely, exploratory case studies are best suited for circumstances where the outcomes related to the subject of study aren't well-defined or are multifaceted. Descriptive case studies, in Yin's view, concentrate on providing a detailed account of an event in its authentic context. Based on Yin's definition, in this paper the explanatory case study was used.

The primary platform for data extraction was the Instagram page of Lil Miquela, given its centrality in her digital life and the medium through which her persona primarily engages with her audience.

Further secondary sources encompassed industry reports, articles, press releases, case studies, and information available on associated brands' websites.

The approach to the year-by-year analysis was structured and detailed. Each year of Lil Miquela's Instagram presence was treated as a distinct unit of analysis. This meticulous approach ensured that evolving trends, significant events, and shifts in engagement patterns were captured. While traversing the digital timeline, pivotal moments, such as magazine interviews, cover shots, song releases, and personal events that could influence her digital persona's

relatability, were documented. Special attention was dedicated to posts that showcased brand endorsements, with a focus on instances where brands were explicitly tagged. This allowed for a clear mapping of her collaboration history, understanding the caliber of brands associated with, and discerning patterns in her brand collaboration strategy. Posts that highlighted Lil Miquela's support for various causes, be it raising awareness or direct calls for donations, were collated. This step aimed to discern the depth of her social responsibility narrative and its alignment with broader societal concerns. An in-depth exploration of her "private life" occurrences was undertaken to understand the character-building elements, making her relatable to her audience. By employing this methodological approach, the aim was to derive a nuanced understanding of Lil Miquela's digital journey, her partnerships, her influence on and off the platform, and her overarching narrative strategy.

Year-by-year analysis

2016

In 2016, a peculiar presence emerged on Instagram that captivated netizens worldwide. This new digital entity, known as Lil Miquela, uploaded her first post on the 27th of April, based on her current first Instagram post (Miquela [instagram], 2023). The hyper-realistic CGI quality of her posts was instantly notable, resulting in an intriguing blend of human-like yet clearly digital characteristics. This uncanny realism incited a flurry of speculation.

Followers and profile visitors clearly stated their confusion in the comment section of her post from 9th of June, as well tried to decipher her nature, many debated the intricate details evident in features like her hair (Miquela [instagram], 2023).

This enigmatic presence experienced a swift rise in popularity. Numerous digital platforms reported on her, further amplifying the curiosity (Dewey, 2016; Ksienzyk, 2019). As the world speculated about her existence, theories abounded. Some hypothesized Miquela was an elaborate marketing ploy, while others conjectured she might be the brainchild of a renowned artist or graphic designer (Miquela [instagram], 2023).

Thus, Miquela's posts became hubs of active discourse. The comments section was rife with followers voicing admiration for the artistry or expressing confusion about her real vs. virtual dichotomy (Miquela [instagram], 2023). Moreover, Miquela's digital footprint wasn't limited to Instagram. Conversations around her spilled over for example to Twitter and TikTok, where she holds accounts as well.

The year culminated with Miquela's identity still ensconced in mystery. The digital community had reached a consensus that she was, undoubtedly, a

CGI creation, but the origins, intentions, and technology behind her remained hot topics of debate on her Instagram channel (Miquela [instagram], 2023).

2017

In 2017, Lil Miquela's digital persona witnessed significant evolution and multifaceted growth, effectively solidifying her position in the virtual domain. She reached on the 27th of December the 500.000 follower count (Miquela [instagram], 2023).

An integral aspect of this progression was her transition into the music scene. Her debut single, “Not Mine”, published on Youtube on the 10th of August emerged as a testament to her versatile appeal (Miquela [youtube], 2017) and got listed in the Spotify “Fresh Finds” playlist and added to a best of 2017 mix (Miquela [instagram], 2023). The impact of this musical venture resonated beyond mere streaming numbers, as it underscored the potential of virtual entities in traditionally human-dominated sectors.

Alongside her musical endeavors, Lil Miquela's influence within the fashion sector burgeoned. As her digital footprint on Instagram grew, so did the attention from eminent fashion brands and the media. She got presented in the Vogue Magazine (E. Chang, 2017) and in the Paper Magazine (Weiss, 2017). Throughout the year, her Instagram profile became a tapestry of fashion endorsements, featuring attire from both established and emerging brands like Area NYC, Kenzo, and IKEA. While specific brand collaborations from that year aren't explicitly mentioned, a closer examination of her Instagram profile from that period provides evidence of her fashion-centric partnerships.

Additionally, she advertised for supporting the Kickstarter campaign of @welcometojuniorhigh that is a nonprofit art space in Los Angeles. On the other hand, she promoted for @myfriendsplace that support homeless youth.

2018

In 2018, Lil Miquela's journey further escalated in terms of recognition, collaboration, and emotional depth, paving the path for her to remain a dominant figure in the digital landscape. Early into the year, a notable moment was captured when she shared a frame with @blawko22, another Brud creation, thus signaling the agency's broader venture into the realm of digital personalities (Miquela [instagram], 2023).

Her musical artistry continued to thrive, evidenced by the launch of her song “You Should Be Alone” on the 26th of January, further exemplifying the increasing acceptance and popularity of virtual artists in the mainstream entertainment spectrum (Miquela [instagram], 2023). Additionally, her collaboration with Baauer on “Hate Me” that launched on the 17th of August not only showcased her versatility but also was met with applause, accumulating 1.5 million streams by the 25th of August (Miquela [instagram], 2023).

The year saw her fashion endorsements reaching new heights. Her association with brands like Moncler, Diesel, Prada, Maison Margiela, Ambush and Balenciaga, to name a few, solidified her status as a virtual fashion icon. A particularly radiant feather in her cap was the partnership with makeup legend, Pat McGrath, on the 6th of February (Miquela [instagram], 2023). As the months progressed, her digital showcase was accentuated by features in prestigious magazines such as V Magazine, King Kong Magazine, Highsnobiety, 032c, Wonderland, Opening Ceremony, Vogue, Garage Magazine and Notion. These publications not only celebrated her virtual persona but also opened dialogues on the intersection of technology, fashion, and human perception.

Simultaneously, 2018 marked a year of significant personal revelations for Miquela. A pivotal event was the hacking of her account by Bermuda in April. The incident culminated in Miquela unveiling her origins, confessing Brud's role in her creation. This episode saw Miquela navigating a tumultuous sea of emotions, from feelings of displacement to eventual reconciliation with her creators at Brud (Miquela [instagram], 2023). Her social media posts have seen during this period unseen heights regarding comments and likes count.

Amidst these emotional waves, Miquela's social circle too saw fluctuations. Parallel to her individual trajectory, Miquela's interactions with fellow CGI entities, particularly Blawko, further exemplified Brud's endeavors to craft intricate, human-esque narratives around its creations. In September Lil Miquela's CGI friend Blawko initiated a romantic chapter with Bermuda, which, however, was short-lived, concluding in October. These storylines, potentially aimed at enhancing relatability, showcased the synthetic entities navigating the myriad complexities of interpersonal dynamics, replete with ebbs and flows.

While her digital universe continued to expand, Miquela ensured her platform was also a beacon for positive change. She fervently supported causes like @educatedlittlemonsters, highlighting the importance of arts for youth; she championed women's rights with Downtown Women's Center and took a stand for immigrant rights in collaboration with @raicestexas. Her advocacy for Planned Parenthood emphasized her commitment to societal well-being (Miquela [instagram], 2023).

As highlight of the year, Time Magazine's accolade of including her in the list of "25 Most Influential People on the Internet" alongside luminaries like Shaun King and Rihanna was a testament to her profound influence, not merely as a digital creation but as a cultural phenomenon (Miquela [instagram], 2023).

2019

In 2019, the digital landscape saw a monumental convergence of virtual and real-world identities, largely driven by the provocative Calvin Klein campaign featuring Lil Miquela. This campaign placed Lil Miquela alongside supermodel

Bella Hadid, resulting in an evocative and, to some, controversial interaction. In a dimly lit blue room, Hadid, embodying reality, and Miquela, the epitome of digital fabrication, came face-to-face. The culminating “kiss”, framed against Hadid’s proclamation about opening doors to new dreams, was designed to blur the lines between tangible and virtual realities (Miquela [youtube], 2019).

The campaign’s reception was multifaceted. While many applauded Calvin Klein’s audacity in merging reality with digital innovation, there was significant backlash accusing the brand of “queerbaiting”. This term, rooted in the intentional and often superficial deployment of queer themes to attract audiences, gains significance in a cultural milieu where genuine queer representation remains elusive. This controversy underscored the inherent challenges in navigating representation, identity, and commercial imperatives in the digital age. Calvin Klein’s subsequent acknowledgment and apology illuminated the complexities of such undertakings, reiterating the need for brands to approach sensitive subjects with care and authenticity (Petarca, 2019).

Beyond the Calvin Klein moment, Miquela continued to expand her influence in music and fashion. She launched her song “Right back” on the 10th of April, that got remixed several times. Later during the year, another two songs got launched on the 31st of July, which were titled “Sleeping In” and “Money”. In October she published “Wasted”, that got followed by the song “Automatic” in November.

2020

Taking a look at the year 2020, one of the most intriguing developments was the affiliation between Lil Miquela and Creative Artists Agency (CAA), a world-renowned talent agency.

Breaking conventional boundaries, CAA formally announced Lil Miquela as its inaugural virtual client (Spangler, 2020). This partnership insinuates potential collaborations across diverse domains like TV, film, brand strategy, and commercial endorsements. CAA executive, Adam Friedman, elaborated on this alliance by emphasizing the agency’s enthusiasm to aid Lil Miquela in exploring the spheres of television and film (Hello Partner, 2020). He further recognized the budding opportunity for avant-garde brands to associate with a digital phenomenon that epitomizes cultural relevance.

Dudley Nevill-Spencer, director and head of data analysis at the Virtual Influencer Agency, offered a future-forward perspective on this alliance. He projected that in the coming half-decade, the representation of virtual influencers by eminent agencies like CAA would become commonplace (Hello Partner, 2020). Given the shifting dynamics of influencer marketing amidst global

events such as the COVID-19 pandemic, the utility of virtual influencers as consistent brand ambassadors has only accentuated.

Additionally, Kara Weber outlined Miquela's remarkable position in the digital landscape. She cited the distinctive opportunities high-fidelity virtual characters like Miquela present, especially in revolutionizing content and advertising paradigms (Spangler, 2020).

In November, Brud launched Lil Miquela's debut NFT, "Rebirth of Venus", a piece symbolizing various potential realities and inspired by Venus, the Roman goddess. This NFT, resonating with mythology, sold for 159.5 ETH or \$82,361 on SuperRare, with proceeds benefiting Black Girls CODE. Subsequently, Brud introduced Lil Miquela's second collection, comprising 1.500 NFTs, that launched in 2021 (Hiort, 2021).

2021

The previous sections of this paper detailed the trailblazing journey of Lil Miquela, from her inception by the LA startup, Brud, to her meteoric rise as a virtual influencer, amassing around 3 million followers and partnering with major brands (Whitbread, 2021). Miquela's success, with her unique blend of AI and authentic digital storytelling, has set a precedent in the industry, influencing luxury brands to reconsider their traditional advertising methods and embark on new digital adventures (Cosmetics Business, 2021). While traditionally, brands have leveraged A-list celebrities or popular content creators for their campaigns, Prada took a divergent path. In late 2021, Prada revealed a new facet of advertising, integrating high fashion, and modern technology, with their introduction of Candy, a computer-generated avatar for their renowned perfume (Pesonen, 2022). The core message of the campaign was to "Rethink Reality", underscoring the fusion of the virtual and real worlds in today's digital age (Prada, 2021).

The campaign was brought to life under the direction of award-winning Danish director Nicolas Winding Refn (Pesonen, 2022). He described Candy as a blend of digital innovation and personal philosophy, emphasizing the importance of authenticity in the digital age. This campaign was not just about showcasing a product but making a statement about the harmonious convergence of reality and the digital realm.

Beyond traditional advertising spaces, Prada ensured Candy was integrated across various digital platforms, such as Twitch, Snapchat, and TikTok (YPulse, 2022). This strategic move appealed to the tech-savvy Gen Z audience, capturing their attention in spaces they frequent and resonate with.

However, it's worth noting that while Prada's venture into the realm of virtual influencers seems revolutionary, it wasn't their initial foray. In 2018, Lil Miquela took over Prada's Instagram during Milan Fashion Week already,

providing a glimpse of the potential collaboration between virtual influencers and high fashion (YPulse, 2022).

The success of virtual influencers like Lil Miquela has undeniably paved the way for luxury brands to explore innovative digital marketing avenues. Prada's Candy campaign serves as a testament to this shift, demonstrating the immense potential of blending traditional luxury branding with cutting-edge technology.

Focusing on the personal development and storytelling of her character, it's not by mere chance that Miquela's creators chose to introduce more personal drama into her life. Virtual influencers are molded to simulate a human experience, replete with emotions, challenges, relationships, and personal growth. Just as Miquela's 2018 storyline had her interacting with friends Bermuda and Blawko and confronting her robotic identity, the introduction of a memory-focused narrative in 2021 similarly roots her in a human-like experience. These stories don't just add dimension to her character but also serve as powerful hooks, drawing audiences deeper into her world.

Lil Miquela addressed the challenging idea of celebrating her 19th birthday for the sixth consecutive year on the 7th of June, showcasing her existential struggles as an ageless virtual entity. This introduction to her frustration with being perennially “stuck” at 19 reveals her desire to evolve, not just remain a static digital persona. This move is strategic; by expressing feelings that resonate with human emotions of growth and age, Lil Miquela creates an opportunity for followers to empathize with her.

Lil Miquela's recent journey delving into her “past” with the USB necklace that she receives as a present from her management team, Brud (Miquela [instagram], 2023), is an ingenious narrative tactic. Though she's eternally 19, this storyline grants her the ability to time-travel, thus the creators give her the opportunity of growth and evolution, attributes inherently human.

As part of her throwback-series, Miquela's prior experiences are reintroduced, reminding followers of a time when she didn't know she was a robot, culminating in the revelation of her true nature through a dramatic hacking event by her nemesis, Bermuda. This past incident strengthens her character's depth and provides context for new followers (Miquela [instagram], 2023).

After this introductory video, she hints that she will share a baby photo of herself if a post reaches 100k likes. This strategy effectively encourages more interaction on her account, which is beneficial for the Instagram algorithm. On the other hand, it keeps her fans eager to see her baby picture soon. After reaching the 100k mark, she posts the baby photo of herself, sparking intrigue and garnering significant engagement, with over 230,000 likes and more than 2,000 comments on her baby post. This move is brilliant, not just for its unpredictability, but also for its timing – it capitalizes on nostalgia, a potent

emotional driver. Moreover, the photo raises the question: how can a robot have baby photos if it doesn't age and is perpetually 19?

Brud clarifies that Miquela's baby phase is a constructed memory, demystifying the earlier post but adding another layer of complexity to her character. This revelation highlights the balance between Miquela's digital nature and her "human" experiences.

As the next throwback-post, Miquela unveils an "emo" phase from her "past". This move strategically aligns her with current Gen Z trends (George, 2021; Woodley, 2021), further embedding her within the broader cultural zeitgeist.

Through baby photos and the exploration of different life phases, Lil Miquela transcends her static digital existence. By doing so, she becomes more relatable to her audience, many of whom have experienced similar phases or can empathize with the nostalgia of looking back. Additionally, she involves her followers in the content creation process, allowing them to decide which memories should be revealed next. She continues posting about her past throughout 2021, unveiling core memories to strengthen her connection with the audience (Miquela [instagram], 2023).

2022

After focusing in 2021 mostly on connecting with her audience and sharing more about her «life», in 2022 a significant collaboration emerged for Lil Miquela, as she became the latest ambassador for PacSun, a prominent teen retailer (Schulz, 2022). This announcement, made on the 12th of August (Miquela [instagram], 2023), reinforced the ever-increasing fusion of the virtual and physical realms, indicating a new era where virtual influencers might just be the next "it-girls".

PacSun has lately made strategic moves to expand its digital presence and develop its metaverse strategy, emphasizing the current trend of merging the physical and digital spaces. Earlier in the year, the brand had already shown interest in the metaverse by introducing a virtual store and an NFT art collection, indicating a long-term vision that goes beyond traditional retail (de la Cruz, 2022).

With the aim to amplify its reach among Gen Z's digital natives, PacSun's collaboration with Miquela was particularly significant for their back-to-school and holiday collections in 2022. This partnership not only leverages Miquela's vast digital influence but also aligns with the brand's desire to resonate with the consumer identities of today's youth. Briane Olson, the President of PacSun, acknowledged Miquela as a "digital muse", praising her for aligning with the brand's core values and vision (de la Cruz, 2022; Silberstein, 2022).

The 2022 collaboration with PacSun was Lil Miquela's re-entry into brand advertising after a brief pause, adding to her impressive repertoire of previous collaborations with giants like Prada and Calvin Klein. For PacSun, the "beginning of an exciting marketing strategy" involved not just promoting their merchandise but also capitalizing on Miquela's unique appeal to their core demographic exploring the digital space (Silberstein, 2022).

However, this partnership also attracted its fair share of controversy. While many lauded the strategic move, there was a segment of the audience that questioned the brand's choice to opt for a virtual influencer over a real person. Critics highlighted potential negative impacts on young girls' mental health, given the "impossible standards" that such virtual personas might propagate. The debate touched upon deeper societal issues, with some suggesting that such CGI models, devoid of real-life flaws, could undermine the values of authenticity and human connection (Clark, 2022).

In 2022, not only could one observe Lil Miquela's comeback as influencer, but the early indications of the strategy arising from Dapper Labs' acquisition of Brud on the 4th of October 2021 began to materialize. This acquisition marked a significant turn, instigating a cascade of developments that took fuller shape in the year 2022.

Brud, known for being the creative force behind Lil Miquela, quickly carved out a niche for itself in crafting compelling virtual narratives. The company highlighted the dormant potential of digital personas amidst a swiftly transforming media landscape, gathering millions of followers (Dapper Labs, 2021). While the domain of virtual influencers sustained its upward growth, its intricate integration with decentralized platforms besides Lil Miquela's NFT launches did not gain significant traction.

Conversely, Dapper Labs emerged as the vanguard in popularizing NFTs, especially with its flagship initiative, NBA Top Shot. Industry projections suggested that brands were expected to allocate around \$15 billion towards influencer marketing in 2022. This emphasizes the burgeoning importance of both tangible and virtual influencers (Fernandez, 2021). Seen against this backdrop, Dapper Labs' decision to acquire Brud was more than a business transaction; it represented a strategic shift aimed at amalgamating virtual influencers with decentralized ecosystems.

To truly understand the rationale behind Dapper Labs' decision to acquire Brud, one must consider statements from its executive team. Roham Gharegozlou, CEO at Dapper Labs, elaborated on the company's ambition to diversify Miquela's narrative, pivoting from a centralized corporate governance to a more inclusive community-centric model. Such sentiments echo the historical grievances related to Web 2.0 platforms, wherein creators expressed discontent over inherent constraints and the lack of true data ownership (Fernandez, 2021).

Trevor McFedries, Founder and CEO of Brud, consistently voiced his commitment to promoting “community-owned storytelling”. By joining forces with Dapper Labs, this vision stood on the cusp of swift realization, enhanced further by the expansive capabilities of the Flow blockchain (Dapper Labs, 2021). Moreover, McFedries’ earlier engagements, such as his role in establishing the DAO “Friends with Benefits”, underscore his enduring inclination towards decentralized, community-driven endeavors (Matney, 2021).

Following the acquisition of Brud by Dapper Labs, Lil Miquela’s digital trajectory underwent a transformative shift, seamlessly aligning with the mutual vision that both entities harbored for her virtual persona. As part of this shift, she launched her imminent NFT series, termed PFPs (Profile Picture NFTs). This series, designed to encapsulate the multifaceted nuances of her digital identity, represents a consolidation of her virtual journey and experiences (Miquela [twitter], 2022).

Alongside the NFT announcement, Dapper Collectives unveiled a glimpse into Villa M, Miquela’s new abode within the metaverse. Accessible via her official portal, Villa M was introduced as an all-encompassing digital realm, offering for select enthusiasts exclusive previews of her forthcoming PFP collection and early access privileges. Miquela envisions Villa M as a space dedicated to collective growth, learning, and forging deeper connections (Imprint, 2022). This PFP initiative is perceived as a mere beginning, a precursor to even grander aspirations within her digital domain. Furthermore, PFP holders can look forward to enriched content and potential access to Villa M (Cowen, 2022).

To further amplify her digital ventures, Miquela took on the mantle of the official host for ComplexLand, an immersive virtual pop culture festival. During this event, she showcased her curatorial expertise by spearheading ComplexLand’s official NFT Art Gallery, offering attendees an additional insight into her emergent Web3 world (Johnson, 2022). The event also incorporated interactive elements, allowing participants to secure access to her exclusive allowlist by engaging with Miquela’s statue situated within the NFT gallery (Cowen, 2022).

2023

In the calendar year of 2023, Lil Miquela’s digital persona continued to interact with both the commercial and artistic sectors, albeit at a more reserved pace than in previous years.

Lil Miquela’s association with luxury fashion brands persisted, as evidenced by her collaboration with Alexander McQueen. Specifically, she made two distinct posts that endorsed bags from the fashion house, suggesting a limited yet pointed promotional endeavor. Furthermore, her digital presence also

showed subtle associations with brands like Haribo, Jarritos soda, Loewe, and Mango. It is pertinent to note that while these brands were tagged in her posts, there were no explicit mentions or extensive elaborations about the products or services offered by them. Such a nuanced approach, often involving tagging without overt mention, is an increasingly observed trend in influencer marketing, hinting at subtle endorsement or association rather than direct promotion. Lil Miquela's interaction with advanced technological innovations was highlighted when she engaged with the Worldcoin Orb, that is a cryptocurrency project that aims to distribute free coins to everyone on Earth through a unique verification process using a specialized orb-shaped device to scan individuals' eyes. Although Lil Miquela's digital nature prevented her from being verified by the Orb, she recommended its utility for human users, encouraging them to explore its functionalities and secure their World ID (Miquela [instagram], 2023).

In 2023, while Lil Miquela's engagements were fewer compared to previous years, they continued to resonate with the evolving dynamics of influencer marketing and digital interaction within the broader socio-cultural context.

Conclusion

The evaluation of the hypothesis

At the beginning of the research, I defined the H1 hypothesis, and I claimed that the most notable partnerships and deals presented by Lil Miquela on her Instagram are predominantly associated with renowned brands in the fashion, music, and technology sectors. During in-depth analysis of her Instagram content, I have found that the collaborations indeed revolve prominently around these sectors. In addition, it can be recognized that these partnerships notably bolster her digital persona's core areas of influence and engagement. Based on these facts, I can conclude that H1 can be accepted, and I formulate the following thesis:

T1: The most significant deals or partnerships showcased by Lil Miquela on her Instagram are likely associated with high-profile brands in the fashion, music, and technology sectors, which align with her digital persona's key areas of influence and engagement.

The limitations of the research

While this research provides insights into the notable partnerships and deals showcased by Lil Miquela on her Instagram, some limitations warrant attention. One of those is, that the research methodology was primarily centered on the evaluation of Lil Miquela's Instagram posts. While Instagram is a significant

platform, it represents only a fraction of the broader digital sphere. Moreover, the study did not delve into quantifiable audience reactions such as likes and comments. By not incorporating these engagement metrics, the research might miss subtle nuances or the depth of audience acceptance concerning Lil Miquela's deals and partnerships.

Additionally, given that posts could be deleted or modified, the Instagram data might not represent a full account of Lil Miquela's historical partnerships or deals.

The third constraint of this study is the scarcity of up-to-date scientific literature on the subject. Without a comprehensive set of recent academic works, drawing robust conclusions or contextualizing findings becomes challenging.

Recommendations for the continuation of the research

Given the outcomes and the limitations of the current study on the significant deals or partnerships showcased by Lil Miquela on her Instagram, the following are recommended avenues for the continuation of research:

A detailed exploration of specific posts that have garnered significant attention, measured through likes and comments, should be conducted. This would provide insights into the type of content that resonates most with the audience. Employing both qualitative and quantitative methods, future research should analyze the nature of comments on high-engagement posts. A sentiment analysis can shed light on audience reception, unveiling both positive and negative reactions, and their potential reasons.

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