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# Possible You: AI-Generated Digital Twins as Creative Mirrors for Future Self Modeling

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Pat Pataranutaporn<sup>1</sup>    Kavin Winson<sup>2</sup>    Peggy Yin<sup>3</sup>    Auttasak Lapapirojn<sup>2</sup>  
Thanawit Prasongpongchai<sup>4</sup>    Monchai Lertsutthiwong<sup>2</sup>    Pattie Maes<sup>1</sup>    Hal Hershfield<sup>5</sup>

<sup>1</sup>MIT Media Lab, Massachusetts Institute of Technology

<sup>2</sup>KASIKORN Labs, KASIKORN Business-Technology Group

<sup>3</sup>Harvard University    <sup>4</sup>Beacon Interface, KASIKORN Business-Technology Group

<sup>5</sup>Anderson School of Management, University of California, Los Angeles

## Abstract

1        The human capacity to envision possible futures fundamentally shapes who we  
2        become. Yet for many, especially those without access to mentorship or resources,  
3        imagining vivid career futures remains abstract and distant. We present “Possible  
4        You,” a creative AI system that transforms career exploration into an intimate dia-  
5        logue with one’s future selves. Through personalized narratives and AI-generated  
6        portraits, the system makes abstract futures tangible and emotionally resonant. In  
7        our mixed-methods study (N=209), we discovered that the perceived authenticity of  
8        these AI-created futures influenced participants’ sense of connection to their future  
9        selves. While viewing multiple possible selves expanded participants’ sense of  
10       possibility, exploring a single future self fostered deeper commitment. This tension  
11       reveals a fundamental aspect of human future-making: we need both breadth to  
12       discover and depth to commit. Our work demonstrates how creative AI can serve  
13       not as predictor or prescriber of futures, but as a mirror that helps humans see and  
14       shape their own becoming contributing to a more equitable landscape where all  
15       people can vividly imagine and pursue meaningful futures.

## 16    1 Introduction

17    To be human is to exist in a state of perpetual becoming constantly modeling possible futures and  
18    authoring the narrative of who we might become. For most people, work represents far more than  
19    economic sustenance; it constitutes the primary canvas upon which identity, purpose, and meaning are  
20    constructed [1, 2]. Career choice profoundly shapes well-being, belonging, and self-conception [3, 4].  
21    Yet the fundamental human capacity to envision one’s professional future to see oneself reflected in  
22    tomorrow remains inequitably distributed [5].

23    Traditionally, career exploration happens through self-reflection, mentorship, internships, and online  
24    research [6, 7]. But despite the rise of digital platforms, career exploration remains an underdeveloped  
25    field [8]. Many people especially those in underresourced communities lack access to effective tools  
26    and support. A 2023 Harvard Project on Workforce report found that exploration opportunities  
27    are inequitably distributed, deepening systemic barriers. This is especially urgent now, as one in  
28    four young people worldwide is left without any educational or training opportunities, an issue that  
29    disproportionately affects young women [9].

30    Career counselors and institutions try to fill the gap, but they are often underresourced and overbur-  
31    dened [10]. Meanwhile, the labor market is rapidly evolving. Emerging technologies, especially  
32    generative AI, are transforming how we learn, work, and make decisions. These tools hold enormous  
33    promise: they can personalize pathways by combining individuals’ lived experiences [11] with

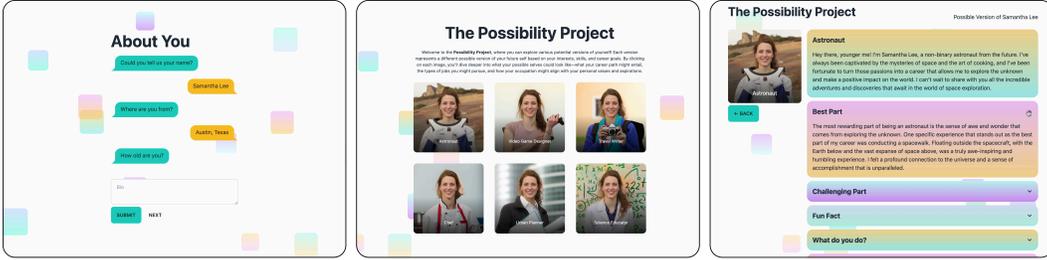


Figure 1: The journey of transformation: from conversation to visualization. The Possible You interface guides users through self-discovery via AI dialogue, then manifests their potential futures as vivid portraits. Three paths emerge from their expressed dreams, three from AI’s creative interpretation of their deeper patterns each portrait a doorway to a detailed narrative of becoming.

34 real-time labor data [12], offering adaptive, counselor-like guidance at scale. However, this potential  
 35 remains largely untapped in the domain of career exploration.

36 We present "Possible You," a system that employs generative AI not as oracle or optimizer, but as  
 37 mirror enabling virtual self modeling through personalized visualizations and narratives of potential  
 38 futures. Drawing from possible self theory [13], which reveals how envisioned futures shape present  
 39 action, our platform generates six AI-mediated reflections of who users might become. This represents  
 40 a fundamental shift: from AI as predictor of futures to AI as creative medium through which humans  
 41 model, explore, and ultimately choose their own becoming.

42 This paper makes the following contributions:

- 43 • A novel system that demonstrates AI-generated virtual self modeling as a new paradigm for  
 44 human becoming, creating personalized mirrors through which individuals encounter their  
 45 possible futures.
- 46 • Empirical evidence revealing the primacy of perceived authenticity over technical sophisti-  
 47 cation in virtual self modeling, with implications for how AI systems can serve as effective  
 48 mirrors for human transformation.
- 49 • Critical insights into the tension between multiplicity and singularity in virtual self modeling  
 50 how seeing many possible selves expands imagination while focusing on one deepens  
 51 commitment to becoming.

52 **2 System Design: Virtual Self Modeling Through Generative AI**

53 We developed Possible You as an interactive system that leverages generative AI to facilitate virtual  
 54 self modeling the process through which individuals construct and explore representations of their  
 55 potential future selves. The system architecture (Figure 2) implements a three-stage pipeline that  
 56 transforms user narratives into personalized visual and textual representations of possible futures,  
 57 drawing on psychological theories of identity-based motivation [13] and future self-continuity [14].

58 The system employs a conversational interface powered by GPT-3.5 that conducts structured identity  
 59 assessment through recursive dialogue patterns. Unlike traditional questionnaire-based approaches,  
 60 our system implements dynamic prompting that adapts based on response depth and content specificity.  
 61 The chatbot evaluates responses across three dimensions: information density (measured by specific  
 62 details versus generic statements), narrative coherence (consistency across different identity domains),  
 63 and autobiographical specificity (presence of personal anecdotes and contextual details). When  
 64 responses lack sufficient depth for instance, generic statements like "I enjoy helping others" the  
 65 system triggers recursive prompting: "Describe a specific moment when helping someone felt  
 66 particularly meaningful to you." This approach draws from narrative identity theory, which posits  
 67 that individuals construct identity through the stories they tell about themselves [15].

68 For visual representation, we implement a two-stage image synthesis pipeline. Users upload a photo-  
 69 graph that undergoes facial extraction, followed by context generation using DALL-E. The system  
 70 constructs prompts that preserve facial features while generating profession-specific environments

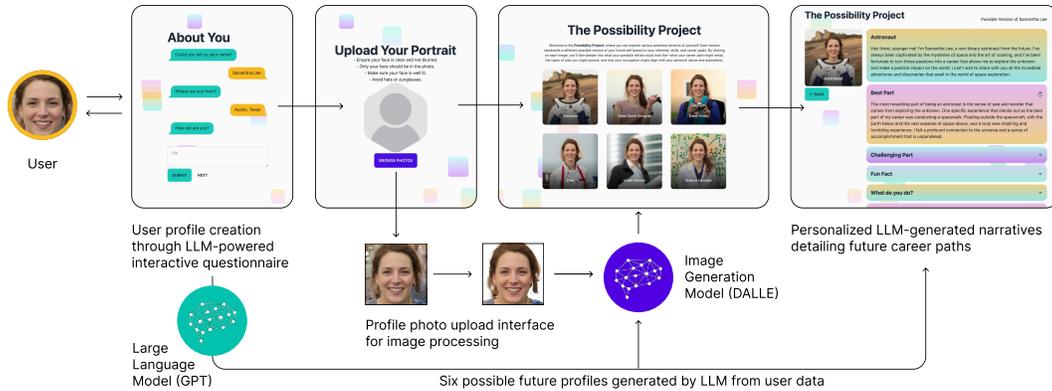


Figure 2: System architecture of Possible You showing the three-stage pipeline for virtual self modeling. Stage 1: Conversational assessment using GPT-3.5 with recursive prompting to extract narrative identity markers. Stage 2: Visual synthesis using DALL-E to generate personalized future self representations. Stage 3: Narrative generation combining user data with labor market information to create six interactive future self profiles.

71 medical settings for healthcare careers, creative studios for design paths, or research laboratories  
 72 for scientific trajectories. This approach maintains identity continuity (recognizable self) while  
 73 enabling identity transformation (reimagined context), creating what we term "identity-preserving  
 74 transformation" essential for effective future self-visualization [16].

75 The system generates six distinct future self profiles using a hybrid approach: three profiles derived  
 76 from explicitly stated preferences and three generated through latent pattern analysis of conversational  
 77 data. This design decision balances user agency (honoring stated preferences) with system creativity  
 78 (revealing unconsidered possibilities). Each profile includes a first-person narrative constructed by  
 79 combining user-specific information with data from authoritative sources such as the U.S. Bureau  
 80 of Labor Statistics. These narratives follow a structured format that includes: temporal progression  
 81 ("I remember being your age..."), challenge acknowledgment ("The path wasn't always straight-  
 82 forward..."), and value alignment (connecting career outcomes to initially expressed values). This  
 83 narrative structure implements findings from possible selves interventions showing that effective  
 84 future self representations must feel both aspirational and achievable [17].

### 85 3 Method: Evaluating Virtual Self Modeling Approaches

86 We conducted a between-subjects experiment (N=209, ages 18-24) to examine how different im-  
 87 plementations of AI-generated virtual self modeling affect future self-continuity and career-related  
 88 outcomes. Participants were recruited through Prolific and randomly assigned to one of five con-  
 89 ditions in a 2x2 factorial design plus control. The experimental manipulation varied along two  
 90 dimensions: multiplicity (single versus multiple future selves) and personalization (self-focused  
 91 versus other-focused framing).

92 Our experimental conditions were designed to isolate key design decisions in virtual self modeling sys-  
 93 tems. The *Multiple-Self* condition (n=41) presented six personalized future selves with AI-generated  
 94 portraits and narratives using first-person language. The *Single-Self* condition (n=44) showed one  
 95 personalized future self with deeper narrative development. The *Multiple-Others* condition (n=37)  
 96 presented six career options using third-person framing without personalized imagery. The *Single-  
 97 Other* condition (n=40) showed one career using impersonal language. The *Control* condition (n=47)  
 98 directed participants to explore the U.S. Bureau of Labor Statistics website, representing traditional  
 99 digital career resources.

100 We employed validated psychological measures adapted for our context: Career Exploration Scale  
 101 [18] assessing information-seeking behaviors; Career Salience Scale [19] measuring career centrality  
 102 to identity; Career Confidence Scale [20] evaluating self-efficacy beliefs; Career Achievement  
 103 Orientation [21] capturing goal-directed motivation; Career Commitment Scale [22] assessing career  
 104 attachment; Adult Hope Scale [23] measuring agency and pathways thinking; and Future Self-

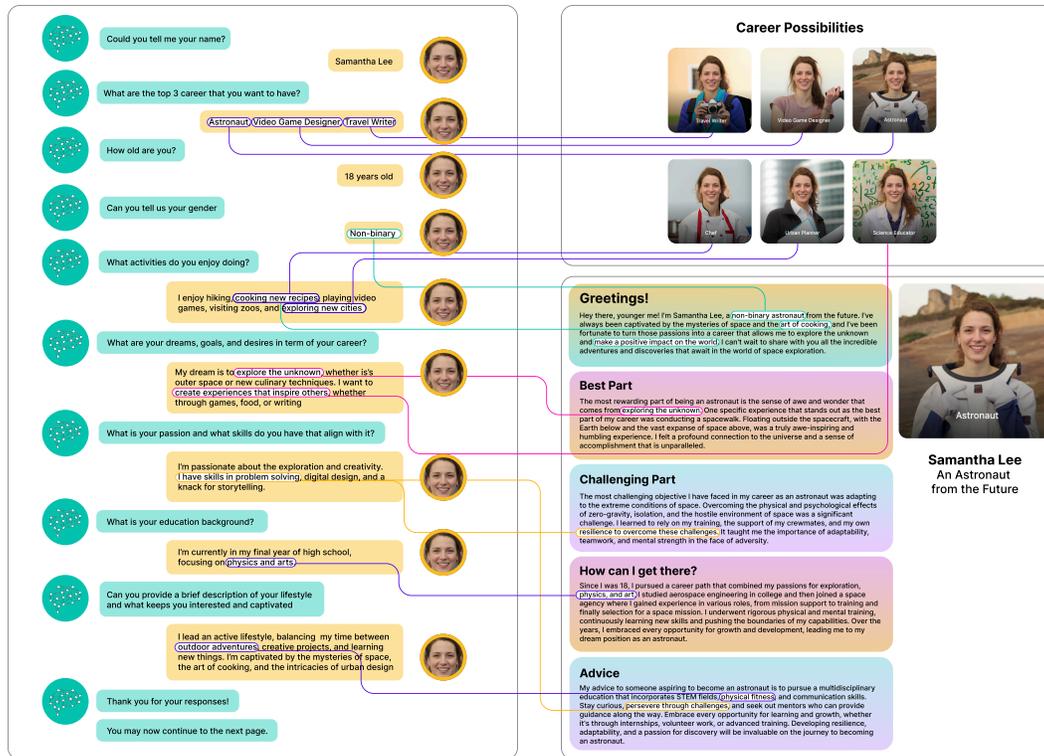


Figure 3: Example user journey illustrating the virtual self modeling process. User "Samantha Lee" engages with the conversational interface, providing information about interests and aspirations. The system identifies latent patterns (exploration theme) across domains and generates six future self representations three based on explicit preferences (Astronaut, Game Designer, Travel Writer) and three derived from pattern analysis (Chef, Urban Planner, Science Educator). Selection of a profile triggers generation of a personalized narrative that integrates user-specific information with career data.

105 Continuity Scale [14] quantifying perceived connection to future self. Additionally, we developed a  
 106 four-item Perceived Realism scale ( $\alpha=0.89$ ) measuring the authenticity of AI-generated content, as  
 107 prior research suggests realism moderates the effectiveness of future self interventions [24].

108 Analysis employed multiple linear regression with bootstrapped standard errors (1,000 replica-  
 109 tions) to ensure robustness. Models included pre-intervention scores as covariates where available,  
 110 demographic controls, and experimental condition indicators collapsed into Career Option (Multi-  
 111 ple/Single/Control) and Career Representation (Self/Other/Control) to maximize statistical power  
 112 while preserving key comparisons.

#### 113 4 Results: The Primacy of Authenticity in Virtual Self Modeling

114 Our analysis revealed that perceived realism of AI-generated content was the most consistent pre-  
 115 dictor of positive outcomes across all measures (Figure 4). This finding held after controlling for  
 116 experimental condition, demographics, and baseline scores. Perceived realism significantly predicted  
 117 future self-continuity ( $\beta=0.39$ ,  $SE=0.11$ ,  $p=0.001$ ), suggesting that authentic-feeling representations  
 118 strengthen the psychological connection between present and future selves. The effect extended  
 119 to behavioral intentions, with realism predicting career exploration ( $\beta=0.26$ ,  $SE=0.07$ ,  $p<0.001$ ),  
 120 career salience ( $\beta=0.28$ ,  $SE=0.06$ ,  $p<0.001$ ), and career achievement orientation ( $\beta=0.18$ ,  $SE=0.06$ ,  
 121  $p=0.001$ ). Most notably, perceived realism showed strong relationships with career commitment  
 122 ( $\beta=0.56$ ,  $SE=0.08$ ,  $p<0.001$ ) and adult hope ( $\beta=0.46$ ,  $SE=0.07$ ,  $p<0.001$ ), indicating that authentic  
 123 virtual self modeling may influence both specific career attachment and general future-oriented  
 124 optimism.

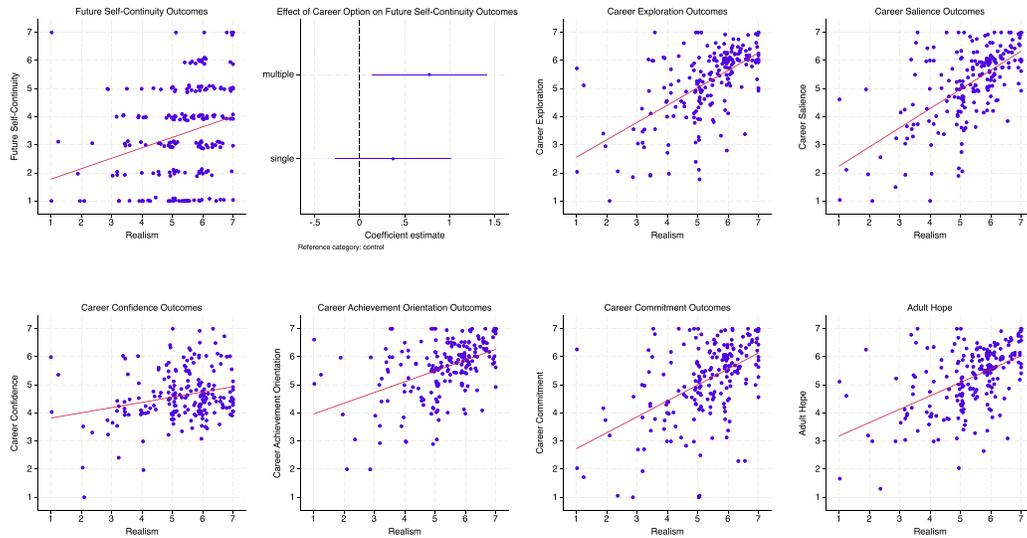


Figure 4: Regression coefficients showing the relationship between perceived realism and outcome measures. Error bars represent 95% confidence intervals from bootstrapped standard errors.

125 The multiplicity manipulation revealed differential effects on continuity versus commitment. Multiple  
 126 future selves significantly enhanced future self-continuity compared to control ( $\beta=0.78$ ,  $SE=0.35$ ,  
 127  $p=0.025$ ), suggesting that exposure to diverse possibilities strengthens the general sense of connection  
 128 to one's future. However, the multiple condition showed negative (though non-significant) coefficients  
 129 for career commitment ( $\beta=-0.27$ ,  $SE=0.22$ ,  $p=0.222$ ), indicating potential tension between exploration  
 130 breadth and commitment depth. This pattern aligns with choice overload literature [?] while  
 131 extending it to identity formation contexts.

132 Pre-intervention scores strongly predicted post-intervention outcomes across all measures where  
 133 baseline data was collected, with coefficients ranging from 0.62 to 0.75 (all  $p<0.001$ ). Demographic  
 134 variables showed minimal predictive power, with two exceptions: non-binary participants reported  
 135 higher career commitment ( $\beta=0.94$ ,  $SE=0.46$ ,  $p=0.042$ ), though this should be interpreted cautiously  
 136 given the small subsample ( $n=10$ ).

137 Qualitative analysis of open-ended responses ( $n=147$  providing substantive feedback) revealed three  
 138 key themes. First, participants valued authenticity over perfection, with many noting that slightly  
 139 imperfect AI-generated images felt more genuine than they expected ("The image wasn't perfect but  
 140 I could actually see myself there"). Second, participants expressed tension between exploration and  
 141 focus, appreciating multiple options while desiring deeper engagement with specific paths ("Seeing  
 142 all six was eye-opening, but I wanted more detail on the one that resonated"). Third, many reported  
 143 unexpected self-recognition through AI pattern analysis ("It picked up on things about me I hadn't  
 144 explicitly stated that felt weirdly validating").

## 145 5 Discussion

146 Our work reveals the AI contribution to human future-making may not be in prediction or optimization,  
 147 but in creative collaboration helping humans see themselves anew. This shift from AI as oracle to AI  
 148 as creative mirror has profound implications.

149 Our findings contribute to HCI research on AI-mediated identity exploration by demonstrating that  
 150 perceived authenticity drives the effectiveness of virtual self modeling systems. The differential  
 151 effects of multiplicity on continuity versus commitment reveal a fundamental design challenge for  
 152 HCI systems supporting identity formation. Multiple representations appear to serve an important  
 153 function in what we term "possibility expansion" broadening users' conception of potential futures and  
 154 strengthening general future orientation. However, this breadth may come at the cost of "commitment  
 155 crystallization" the focused engagement necessary for pursuing specific paths. This suggests that

156 effective virtual self modeling systems need adaptive architectures that can support different phases of  
157 identity work, potentially beginning with multiple representations to establish future self-continuity,  
158 then transitioning to focused exploration as users identify resonant possibilities.

159 From a theoretical perspective, our results extend possible selves theory [13] into the domain of  
160 AI-mediated identity formation. The strong relationship between perceived realism and outcomes  
161 across multiple measures suggests that AI-generated possible selves can function similarly to mentally  
162 constructed ones, provided they achieve sufficient authenticity. This has implications for understand-  
163 ing how digital representations influence identity processes, contributing to emerging research on  
164 human-AI interaction in identity-relevant contexts. The minimal impact of demographic variables  
165 (aside from the noted exceptions) suggests that virtual self modeling may have broad applicability  
166 across user populations. This has important implications for addressing inequities in career devel-  
167 opment resources, as AI-based systems could potentially provide personalized identity exploration  
168 support at scale.

## 169 **6 Design Implications and Ethical Considerations**

170 Our findings yield specific design recommendations for HCI practitioners developing virtual self  
171 modeling systems. First, prioritize emotional authenticity over visual perfection our data suggest that  
172 users respond more positively to genuine-feeling but imperfect representations than to technically  
173 superior but emotionally vacant ones. Second, implement adaptive multiplicity that responds to users'  
174 position in their identity formation journey, potentially using interaction patterns or explicit user input  
175 to determine when to shift from exploratory to focused modes. Third, leverage narrative generation  
176 to create compelling first-person stories that integrate user-specific information with realistic career  
177 information, as our qualitative data indicates that these personalized narratives were particularly  
178 impactful. The ethical implications of AI systems that influence identity formation require careful  
179 consideration. Our findings demonstrate that AI-generated possible selves can significantly impact  
180 how individuals perceive their futures, raising questions about algorithmic responsibility in identity  
181 development. System designers must consider: How do we ensure AI-generated possibilities expand  
182 rather than constrain users' self-concepts? What are the implications of AI systems recognizing  
183 patterns in users that they haven't consciously acknowledged? How do we balance inspirational value  
184 with realistic expectations? These questions become particularly urgent given the potential for such  
185 systems.

## 186 **7 Conclusion**

187 This work presents Possible You, a system that demonstrates how generative AI can facilitate virtual  
188 self modeling the construction and exploration of possible future selves. Our experimental evaluation  
189 reveals that perceived authenticity, rather than technical sophistication, drives the effectiveness of AI-  
190 generated future self representations. While multiple possible selves enhance future self-continuity,  
191 they may reduce commitment to specific paths, suggesting the need for adaptive systems that support  
192 different phases of identity exploration. These findings contribute to research on AI-mediated  
193 identity formation and offer practical guidance for designing systems that leverage generative AI to  
194 support human development and decision-making. As AI capabilities continue to advance, our work  
195 provides a foundation for understanding how to design systems that augment rather than automate  
196 the fundamentally human process of imagining and pursuing meaningful futures. In the end, Possible  
197 You is less about technology than about human possibility. It's about recognizing that every person  
198 carries within them multiple possible futures, waiting to be seen, chosen, and lived. AI, at its most  
199 creative and most human, can help us see these possibilities more clearly. But the choice that most  
200 human of acts remains ours alone. Through creative AI, we don't automate the journey of becoming;  
201 we illuminate it, making the path forward visible for all who dare to look.

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