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從消費者到投資者的旅程：
設計適合年輕人的金融 AI 助手，推動可持續購物、儲蓄與投資

The Journey from Consumer to Investor:
Designing a Financial AI Companion for Young Adults to Help with
Sustainable Shopping, Saving, and Investing

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Abstract

Taiwanese young adults, college students in particular, are concerned with environmental issues, yet they are hindered by lack of simple tools to affect systemic change. Meanwhile, strengthening environmental policy from the European Union includes the concept of *digital product passports*, which aims to help distinguish *eco-designed* products made by *circular economy* companies striving to be zero-waste from companies that simply engage in *greenwashing*. Tracking product data from the source materials, until the consumer purchase decision, and finally post-purchase recycling, facilitates building *transparency* into opaque global supply chains. *Data-driven interaction design*, *large-language models*, and *artificial intelligence assistants* translate complex environmental data into human-comprehensible language.

The emerging field of *planetary health* recognizes profound interconnections between our economic behaviors, ecosystem services such as clean water, air, soil, the climate crisis, and human health. As of 2024, Earth's natural environment is being heavily degraded by the extractive business practices of companies that make many of the products and services we buy every day. The way we use our money to interact with companies - through shopping as consumers and saving / investing as investors - has an effect on the life-supporting biosphere we rely on to keep our planet inhabitable. In essence, from an ecological perspective, every financial action is either an investment decision to support more environmentally-friendly companies - or to support polluters. By democratizing financial markets, young adults can gain greater access and influence over where their money goes, enabling them to support sustainable and environmentally responsible companies.

My research addresses the need for tools to make sustainable financial action more convenient, focusing in particular on college students. I leverage *design research* to find design concepts for *simple AI-based user interfaces* - also known as *generative UIs* - to help young adults participate in *sustainable financial activism*. A survey of 700 students across 10 universities in Taiwan was conducted, enhanced by 5 expert interviews providing industry insights. The major contribution of the study is an interactive AI-assistant prototype.

Keywords: Human-AI Interaction, Digital Sustainability, Transparency

摘要

台灣的年輕人，特別是大學生，關注環境問題，但因缺乏簡單的工具來影響系統性改變而受阻。同時，歐盟加強的環保政策引入了「數字產品護照」的概念，旨在區分由努力實現零廢棄的「循環經濟」公司製造的「生態設計」產品，與僅從事「漂綠」的公司。從原料開始追蹤產品數據，直到消費者的購買決策，最後到購後的回收，促進在不透明的全球供應鏈中建立透明度。「數據驅動的互動設計」、「大型語言模型」和「人工智慧助理」將復雜的環境數據轉換成人類可理解的語言。

新興的「地球健康」領域認識到，我們的經濟行為、生態系統服務（如清潔的水、空氣、土壤）、氣候危機和人類健康之間存在著深刻的相互聯繫。截至 2024 年，由於生產我們日常購買的許多產品和服務的公司進行的開採性商業行為，地球的自然環境正被嚴重破壞。我們用金錢與公司互動的方式——作為消費者的購物和作為投資者的儲蓄/投資——對我們賴以維持地球宜居性的生命支持生物圈產生影響。從生態學角度來看，每一個財務行動不是支持更環保公司的投資決策，就是支持污染者。透過民主化金融市場，年輕人可以獲得更大的權限和影響力，控制他們的資金流向，使他們能夠支持可持續和對環境負責的公司。

我的研究針對了需要工具來使可持續的財務行動更便捷的需求，特別關注大學生。我利用設計研究來尋找簡單的基於 AI 的使用者介面的設計概念，也稱為生成式 UI，以幫助年輕人參與可持續的財務行動主義。在台灣 10 所大學進行了涵蓋 700 名學生的調查，並透過 5 次專家訪談提供行業見解。研究的主要貢獻是一個互動式 AI 助理原型。

關鍵詞：人機互動、數字可持續性、透明度

The abstract was translated on May 22, 2024 using the Claude 3 Opus model. Translation quality was checked with OpenAI GPT4, Google Gemini, Mistral Large, Meta LLama, as well as human reviewers, and further refined with the OpenAI o1-preview model in November 2024. In case of any discrepancies, please refer to the English text.