Enhancing Collaborative Storytelling for People with Dementia through AI-Based Media Generation

Rares Burghelea | Supervised by Paul Raingeard de la Blétière

Background & Motivation

People with dementia often experience cognitive decline, isolation, and loss of identity. While therapies like reminiscence and music therapy help maintain social connection and well-being, creative storytelling offers a particularly engaging activity.

Recent research shows that co-creating stories with people with dementia improves mood, communication, and sense of purpose. However, transforming these stories into vivid multimedia remains underexplored.

Limitations & Question

Without AI, creating personalized multimedia requires skilled professionals and complex tools, making it slow, costly, and inaccessible.

Key question:
How can we make AI outputs both easy to use and emotionally meaningful?

Method & Development

We developed a system where people with dementia and family members co-create a short story.

➤ **Step 1:** Story text is input into a text-to-image model (e.g., Stable Diffusion) to generate a visual scene.
➤ **Step 2:** The same text is used in a text-to-music model (e.g., MusicLM) to generate a matching soundtrack.
➤ **Step 3:** Participants view and listen to the generated outputs.
➤ **Step 4:** Feedback is collected and used to improve the result on the spot.

This approach balances AI automation with human-centered feedback to personalize the experience.

Results & Conclusion

The AI system generates images in ~56 seconds — dramatically faster than manual production.

The images remained true to the story and rarely came with hallucinations or differing results from the story. Whenever feedback was given, the improvement was accurate and meaningful.

Conclusion:
AI enables rapid, scalable multimedia generation and shows promise for meaningful use in dementia care.

Future Improvements & Work

Future work will focus on expanding the system to generate more complex multimedia, such as changing images, slideshows, and dynamic music that evolves over time to match the story.

An important bottleneck for the current version is the power of the LLM models used. As such, using the state-of-the-art AI models would lead to significantly better results, and as AI continues to develop, so will the results generated by this project.