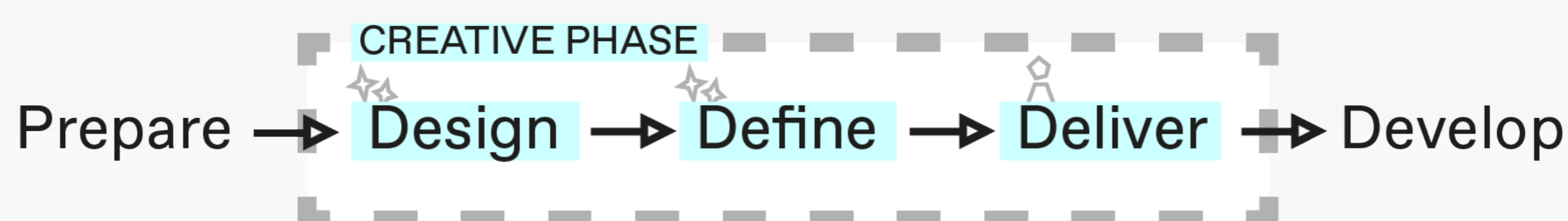# BRIDGING THE GAP BETWEEN GENERATIVE ARTIFICIAL INTELLIGENCE AND INNOVATION IN FOOTWEAR DESIGN

This thesis aimed to innovate the footwear design process at Filling Pieces by integrating generative artificial intelligence, addressing the conservating nature of the industry in the face of increasing demands for innovation.

By leveraging advanced tools like Stable Diffusion with LoRA fine tuning, the research successfully captured brand identity and produced high-quality design concepts using reference images and ControlNet. To validate the effectiveness of these AI-driven workflows, a case demonstration was conducted, followed by a user test comparing AI-generated designs with traditional processes.

The findings reveal that the AI framework significantly accelerates design concept generation and enhances creativity by producing more novel designs. However, limitations were noted in terms of clarity, completeness, and production feasibility, emphasizing the necessity for AI outputs to be complemented by traditional technical drawings. Ultimately, this research demonstrates that the relationship between AI and human designers should be complementary, combining the strengths of both to achieve the most effective results in footwear design.

CREATIVE PHASE

Prepare → Design → Define → Deliver → Develop

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