

**Dr. Sara Mahmoud Sweidan: "Deep Generative Modelling"**  
**Topic abstract**

This presentation provides a comprehensive overview of Deep Generative AI modelling (DGMs), highlighting their transformative impact on various fields, including mental health. Generative AI leverages deep learning and probabilistic modelling to create original content, such as text, images, audio, and video. The presentation covers the advantages of generative AI and addresses challenges like data reliability, cost, and ethical considerations such as bias and misuse. It further explores various deep generative models, including autoregressive and flow-based models, explaining their mechanisms and real-life applications, such as language prediction, image synthesis, and audio generation. A mental health case study demonstrates how generative AI-powered chatbots can support diagnosis and therapy for depression by integrating retrieval and generative approaches. Overall, the presentation emphasizes the revolutionary potential of generative AI and DGMs to unlock new creative and practical applications, while underscoring the need for responsible development and ethical governance.