1. The schematic of the heat treatment process was manually designed using Microsoft PowerPoint to clearly illustrate the sequence and conditions involved.

2. Microstructure images captured via OM were cropped using the prepare\_data.py script available in the author's GitHub repository. All other visual elements in the figure were composed using Microsoft PowerPoint.

3. The diagram illustrating the overall architecture of StyleGAN, including its generator and discriminator components, was constructed entirely in Microsoft PowerPoint for clarity and presentation.

4. The schematic representation of the ResNet-101 architecture was drawn using Microsoft PowerPoint.

5. Raw OM images were used without any preprocessing or enhancement. These were directly arranged and laid out using Microsoft PowerPoint for comparison.

6. The mechanical properties—tensile strength, yield strength, and elongation—measured experimentally through tensile tests (results are provided in tensile\_test\_result.txt) were plotted using Origin software for visualization.

7. Synthetic microstructure images were generated using the trained StyleGAN model via the inference.py script provided in the author's GitHub repository. All accompanying graphical components were created using Microsoft PowerPoint.

8. The ferrite phase fraction on each image was estimated using the phase\_fraction\_analysis function in the evaluate.py script located in the conditional\_stylegan folder. All supplementary visuals and annotations were created using Microsoft PowerPoint.

9. The ferrite fractions of real and generated microstructure images was estimateed using the phase\_fraction\_analysis function in the evaluate.py script located in the conditional\_stylegan folder and visualized using charting tools in Microsoft PowerPoint.

10. FID scores of each model were computed using the evaluate.py script in the conditional\_gan, conditional\_dcgan, and conditional\_stylegan folders. The results were presented graphically using PowerPoint-generated charts.

11. The RMSE and R2 values for property predictions by ResNet-100 were calculated using the mean\_squared\_error and r2\_score functions from sklearn.metrics in the train.py script located in the resnet folder. The resulting RMSE and R² values were saved as an Excel file and visualized using Origin software.

12. Predicted values for each mechanical property were inferred using the inference.py script located in the resnet directory of the author’s GitHub repository. These predictions were plotted and analyzed using Origin software.