AI Tools in Safety

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Keywords Spiritual Safety, Process Safety, Chemical Engineering, Risk Assessment

Learning Outcomes

- Understand the basics of AI tools, including neural networks and how they predict outputs from weighted inputs.
- Effectively use AI tools in safety analysis to brainstorm failure modes and identify potential hazards.
- Evaluate the ethics of AI use, including issues of academic integrity, confidentiality, and societal impact.

Reading

- Foundations of Spiritual and Physical Safety: with Chemical Processes; Chapter 11

Action Items

1. Use the basic provided machine learning code to fit the relationship for the drag coefficient of a sphere as a function of Reynolds number. See Note 1 for Chapter 11(Guymon, 2025) for tips.
2. Take a picture of Figure XI.2 and submit the image to an AI chatbot with a prompt about identifying possible failure modes for personal injury when working with a reactive chemical subject to friction, impact, ESD, and thermal initiation scenarios. Compare the list of failure modes to that given in the text (page 290-292). Summarize your findings and thoughts.
3. Personal Reflection: Document three specific things you expect would happen to your critical thinking skills or engineering preparation if you overuse AI.
4. Document three (3) specific things apostles of the Lord Jesus Christ have said about AI use.

References

C. Guymon. *Foundations of Spiritual and Physical Safety: with Chemical Processes*. 2025.