

Event contact	Thomas Proffen, 865-576-8633 (office); tproffen@ornl.gov	
Machine Learning Basics and How It Can Help Neutron Scattering Analysis		
Time	Event	Lead
Monday, August 11, 2025 Location: Salon A		
8:30-9:00 a.m.	Working Breakfast & Talk: How we use Machine Learning	Thomas Proffen, Yongqiang Chen, Massimiliano Lupo Pasini
9:00 a.m. – 10:00 a.m.	Talk: Machine Learning in Structural Science	Thomas Proffen
10:00 a.m. – 11:00 a.m.	Activity 1: Teachable Machine (https://teachablemachine.withgoogle.com/) – learning about concepts and bias – neutron data application (diffuse scattering classification)	Thomas Proffen
11:00 a.m. – 12:00 p.m.	Talks: Application to neutron scattering - I <ul style="list-style-type: none">• Spectroscopy (Yongqiang Cheng)• Powder Diffraction (Dayton Kizzire)• Single Crystal Diffraction (Xiaoping Wang)	Multiple Speakers
12:00 p.m.- 1:00 p.m.	Working Lunch Talk: Reflecting on 30 years of experiments and computer modeling	Thomas Proffen
1:00 p.m. – 2:00 p.m.	Talks: Application to neutron scattering - II <ul style="list-style-type: none">• Imaging (Shiming Tang)• Reflectometry (Chen Zhang)• SANS (Lijie Ding)	Multiple Speakers
2:00 p.m. – 2:30 p.m.	Activity 2: Tensorflow Playground (https://playground.tensorflow.org/) – building a basic neural network and learn how it works and the role of each component	Thomas Proffen
2:30 p.m. – 4:30 p.m.	Talk: Software frameworks. How to get started? Activity 3: Hands-on session on existing software using AI/ML for materials research and neutron scattering (Google Colab)	Massimiliano Lupo Pasini
4:30 p.m. – 5:00 p.m.	Wrap up	Thomas Proffen