

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: What is Machine Learning	Thomas Proffen
9:00 a.m. – 12:00 p.m.	Activity 1: Teachable Machine (https://teachablemachine.withgoogle.com/) – learning about concepts and bias – neutron data application (diffuse scattering classification)	Thomas Proffen
12:00 p.m. – 1:00 p.m.	Working Lunch Talks: Application to neutron scattering • Spectroscopy (Yongqiang Cheng) • Powder Diffraction (Dayton Kizzire, Yuanpeng Zhang) • Single Crystal Diffraction (Yiqing Hao) • SANS (Changwoo Do, Wei-Ren Chen) • Reflectometry (Mathieu Doucet) • Imaging (Shiming Tang) • Magnetism (Joe Paddison)	Multiple Speakers
1:00 p.m. – 5:00 p.m.	Activity 2: Neural Network Calculator (https://pages.nist.gov/nn-calculator/) – building a basic neural network and learn how it works and the role of each component	Thomas Proffen
	Talks: Software frameworks. How to get started? • Introduction to pytorch/tensorflow • Introduction to foundation models for materials simulation	Massimiliano Lupo Pasini
	Activity 3: Hands-on session on existing software using AI/ML for materials research and neutron scattering	Thomas Proffen