Engineering real-time light source experimental workflows has the opportunity to make efficient use of beam times, increase the number of experiments performed, and accelerate scientific discoveries through better quality data collection. I will detail a couple real-time experiment workflows in the area of dynamic diamond anvil cell and dynamic compression experiments and describe the data science that enables them. I will also briefly cover a machine learning technology for control and optimization and show some use cases where it could be applied to experimental and facility workflows.

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