**SAGEEP 2025: Special Session – Future of Geophysics (FOG)**

**Title: The Future of Engineering Geophysics: Smarter Tools, Changing Roles**

**Speaker: Richard Krahenbuhl – EEGS Member**

**Affiliation: Colorado School of Mines, Golden, CO 80228**

 **Director:** **Humanitarian Engineering & Science Graduate Program**

 **Research Assoc. Prof.: Geophysics Department**

**Abstract:**

Over the next few decades, geophysics has the potential to undergo a major transformation within the engineering community. As the geophysical tools we have been developing and refining over the past decades become more intelligent, more automated, and easier to use, their integration into engineering workflows may continue to expand beyond traditional applications. AI-driven processing and interpretation tools, drone-based surveys, and real-time cloud computing are actively making data collection and interpretation faster and more accessible to the broader community. However, as these technologies continue to advance at a rapid pace, a bigger question comes to mind: As civil, environmental, archaeological, and humanitarian professionals increasingly incorporate geophysics into their work, will this trend accelerate to the point where geophysicists are no longer essential, or will their role evolve alongside these advancements?

From monitoring aging infrastructure to helping communities locate groundwater with low-cost sensors, future geophysical tools may shift from specialist equipment to everyday engineering instruments. AI-powered software could handle much of the analysis, allowing non-geophysicists to gather and interpret subsurface data with minimal training. If that’s the case, what role will geophysicists play in the future? Will they become technology developers, educators, or consultants rather than field practitioners?

This talk will explore where the future of engineering geophysics has the potential to head, highlighting some of the key advancements such as those presented throughout this session, emerging applications, and how the profession itself might evolve as the tools become more widespread and self-sufficient.