

# PROTXX and AltaML Combine Phybrata Sensors and Machine Learning to Set New Benchmark in Concussion Diagnostics

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EINPresswire.com/ -- Silicon Valley, California and Calgary, Alberta based precision healthcare technology pioneer PROTXX and Alberta-based applied artificial intelligence (AI) studio AltaML have set a new benchmark in concussion diagnostics. Results recently [published in the journal \*Sensors\*](#) demonstrate that the classification performance achieved for concussion biomarkers derived using the combination of phybrata sensor data and machine learning (ML) models exceeds previously reported approaches to ML-based concussion diagnostics using a wide range of other data sources, including MRI, fMRI, computerized balance and gait analyses, and blood biomarkers. The study also demonstrates the first combination of a wearable sensor and ML model that can distinguish between concussion-induced disruptions within the brain vs. the vestibular balance organs.



Phybrata sensing, a technology pioneered by PROTXX, is used to detect microscopic involuntary motions of the body caused by neurophysiological impairments that disrupt the body's motor control. Measuring these motions at the head enables detection of signals that independently identify and quantify impairments to multiple physiological systems based on the unique contributions that they make to biomechanical stabilization of the head and eyes as the reference platform used by the body to enable balance and movement. PROTXX has previously shown that [phybrata biomarkers](#) enable detection and classification of neurological, sensory, and musculoskeletal impairments with performance that matches current gold standard laboratory solutions such as computerized dynamic posturography, with sensitivity, specificity, and accuracy all above 90%. The AltaML collaboration has led to the development of a ML model that is able to identify a wider range of relevant phybrata signal features that contribute to impairment classification, further enhancing the diagnostic performance beyond the capabilities of manual feature inspection and statistical data analysis.

AltaML is developing a portfolio of future-focused AI-powered software solutions across multiple industries, including healthcare. Cory Janssen, Co-Founder and Co-CEO of AltaML, commented: "Today's announcement highlights the power of collaborative innovation, whereby deep AI and domain expertise are brought together by the AltaML and PROTXX teams to develop new solutions driven by AI. We are excited to have been able to contribute to this important clinical application of the phybrata sensing."

PROTXX integrates these wearable sensor and machine learning innovations into a precision healthcare platform that replaces bulky and expensive clinical equipment and time-consuming testing procedures for a variety of neurodegenerative medical conditions, disrupting diagnosis and treatment with easy-to-use low-cost precision patient assessments.

Ashutosh Raina, MD, pediatric neurologist and co-founder of the Concussion Medical Clinic in Sacramento, California, one of the study's patient testing sites, commented: "The integration of phybrata sensing and machine learning to help automate concussion diagnoses and recovery monitoring provides important new capabilities for improving patient quality of care while saving significant healthcare dollars."

PROTXX CEO and Founder, John Ralston, added: "The application of state-of-the-art machine learning techniques is a key enabler for our highly scalable precision healthcare platform and its ability to improve the diagnoses and treatment of concussions and many other complex neurological medical conditions."

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About PROTXX, Inc. (<https://protxx.com/>)

PROTXX innovations in wearable sensors, machine learning, and remote patient care transform the lives of tens of millions of people with complex neurophysiological medical conditions that can result from injuries, disease, and aging. With offices in Menlo Park, California, and Calgary, Alberta, the company is led by an accomplished team of IoT device and data platform engineers, clinical neurology researchers and practitioners, and digital healthcare business professionals, and is supported by a well-established network of R&D, manufacturing, clinical pilot, and business development partners in Canada, the U.S., the U.K., and Europe.

About AltaML (<https://www.altaml.com/>)

AltaML is an applied AI studio driven to elevate human potential, and builds relationships founded on shared beliefs around using AI for good. This work includes accelerating the AI adoption journey for organizations in the private and public sectors as well as growing a portfolio of industry-specific joint ventures to pursue product opportunities. In addition, AltaML operates talent accelerators to increase the pool of industry-ready data science talent while driving partners' AI experimentation. With offices in Edmonton, Calgary and Toronto, AltaML is scaling rapidly to become a global leader in responsible AI.

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