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Department of Mathematical Sciences

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**Colloquium Presentation**

**Speaker**: Dr. George Stoica, Genome Transplant Consortium, Syreon Corporation and diaMentis Inc.

**Title**: Statistical and Machine Learning Design and Methodology Related to the Predictive Modelling of Longitudinal Data in Kidney Transplantation

**Date: Wednesday, December 06, 2023**

**Time: 11:00 AM - 12:00 PM**

**Room: RB2044**

    Abstract: Outcomes in healthcare, such as kidney function or kidney graft survival, are

    affected by complex parameters, most of which cannot be collected during a doctor visit.

    Some other data that affect the outcome of interest, if present in the record at all, are usually

    based on the patient's imperfect recall and subjective description. Moreover, these clinical

    features may vary in diverse time scales, and this variability plays a vital role in indicating

    the health status. For example, intra-individual variability in kidney function biomarkers is

    associated with negative outcomes in terms of patient survival and renal survival.

    Recent research may help overcome these issues. We present today the following examples

    of representation learning models that capture the variability of the biomarkers in the short

    and long term as clinical features to predict the health status at different time points: eGFR,

    iBox, AdaCare, DISPO and, time permits, other classification algorithms as well. Because

    of their dynamic design, these models can be continuously updated and hold value as a

    bedside tool that could refine the prognostic judgements of clinicians in everyday practice,

    hence enhancing precision medicine in the transplant setting.