

# Connecting The Dots 2018



**Tuesday, March 20, 2018 - Thursday, March 22, 2018**

**University of Washington Seattle**

## Scientific Program

## **1: Algorithms and theoretical analysis**

Mathematical evaluation of pattern recognition problems, fitting tracks beyond classical Kalman filters, effect of noise, etc.

## **2: Real-time pattern recognition and fast tracking**

Software and firmware implementation for parallel and discrete pattern recognition, e.g. Hough transform approaches, look-up tables, associative memory, etc. Timing performance for fast tracking or on-line trigger system.

## **3: Machine learning approaches**

Novel tracking concepts, software and firmware implementations, exploration of neuromorphic hardware

## **4: Performance evaluation**

Examples of implemented pattern recognition problems and solutions with emphasis on new challenges and limits of scaling existing approaches

## **5: Advanced usage of tracks**

Advanced algorithms to build high level information from tracks, e.g. conversion, vertexing, jets, tau and flavor tagging

## **6: Beyond the conventional tracking**

4D tracking using precision timing information, software techniques for novel detector concepts and interdisciplinary developments in the field of data science, e.g. neuro inspired computing, Brain activity, connectivity