Joseph’s work on paper 2

* Gait began with image processing, but new methods were utilized such as derfoot pressures and accelerometer.
* USF supplied a significant portion of data to the HumanID dataset challenge. It is the most commonly used dataset in gait recognition literature.
* Various modalities should capture biomechanical pressures, its body part masses, or the time-varying generated forces applied during gait.
* Common preprocessing step is to extract a binary silhouette. From this, we can obtain the width and build of the silhouette.
* Pressure mats were able to normalize the orientation and position of footprints and matched with direct templates. Mat can compute spatial features and between-footstep features (e.g., stride length, toe-out angle), and indicate barefoot travel.
* Rodriguez 2011;2013 extract contour features in the pressure, captured negative and positive changes among the sensors at each time stop.
* Find acceleration by F=ma. comparing gait cycle accelerations achieved the lowest EER (<10%).
* Acoustic Gait features: may be more accurate than pressure data. Audio records a sense of intensity as well as measure the time between footsteps. The cadence of the sound can determine cycle.
* Gafurov et at. (2007) evaluated spoofing by comparing average gait cycles approach achieved a 73.2%. Performance CR with 100 subjects.
* Subjects mimicking other gaits caused CR drop to 50 from 90 total.
* 6 challenges in biometric gait recog: Distinctiveness of cue. Consistency with time, emotion, and illness. Effects of covariate and spoofing. Fusion of gait with other sensors and biometrics. Prediction. Create dataset. Explore role of deep learning in gait.
* Cross-modality prediction of gait features: Predicting gait feature sets pertaining to one modality based on another modality. Side q: Can a gait be accurately modeled based on few features?
* Consistency of gait: GRF curves report the change in overall vertical force over the footstep, and COP curves provides the underfoot trajectory.