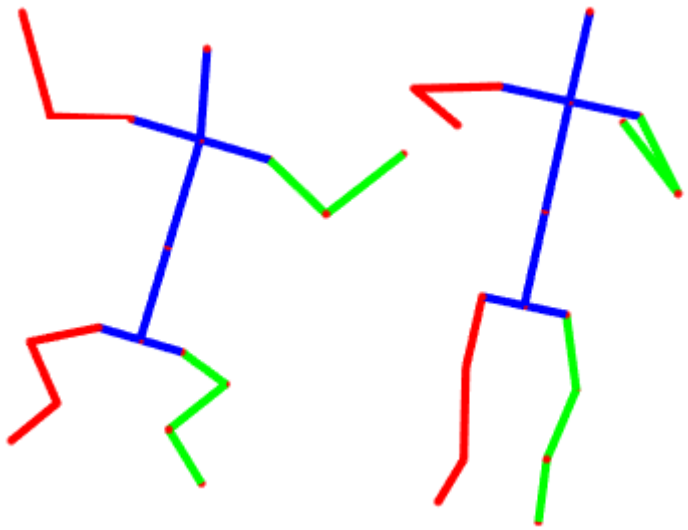
BSc/MSc-project for students in Biomedical Engineering, DTU/KU

Title: Pattern classification and recognition on motion tracking data of infants

Description: Even though infants below 6 months of age are not able to move around, the seemingly random movement patterns of the head, arms and legs are a critical part of the infant's motor development. These movements are the building-stones for later motor skills and are essential for the infant. If certain motor milestones are not met or if the movements are abnormal, this can be an indication for a motor disorder such as cerebral palsy.

A relatively large number of infants has been recorded with a motion capture system, capturing the movements of infants during a 3-10 minutes period. The project will focus on uncovering possible measures of motor development and infant's abilities to meet certain age-related motor milestones, based on the results from the motion capture system. The data are time-signals of spatial locations of the infant's joints and extremities, as well as angular parameters in the joints.



Example of two poses in the dataset, relevant for evaluation of the infant meeting motor milestones. Left: The infant's pose is symmetric. Right: The infant is reaching for midline.

Required qualifications: Knowledge of; Matlab or similar, data analysis, machine learning

Responsible institution: University of Copenhagen

Contact information: Mikkel Damgaard Justiniano, Industrial Postdoc, mdol@elsassfonden.dk

Allowed no of students per report (1-2): 1-2

KU supervisor: Jens Bo Nielsen, Professor, dr.med., Ph.d.