

ECS7006 Music Informatics 2023: Lab 3 – YIN

Date and Time: Thu 2 Mar 10:00-12:00

Location: ITL 2F

Your task in this lab is to implement a simple version of the monophonic pitch detection algorithm YIN (A. de Cheveigné and H. Kawahara, 2002, *YIN, a fundamental frequency estimator for speech and music*, Journal of the Acoustical Society of America, **111**, pp 1917–1930). Apply the algorithm to the given example file containing monophonic singing (`data/happyBirthday.wav`).

Start with the normalised difference function, then add quadratic interpolation to obtain a more accurate pitch estimate. How well does your implementation work on the given test file? What is a suitable threshold value for distinguishing voiced from unvoiced frames? If you have time, implement temporal smoothing and automatic segmentation (finding note boundaries).

If you are interested, you can read about the research involving this and other recordings of Happy Birthday here:

www.eecs.qmul.ac.uk/~simond/pub/2014/MauchFrielerDixon_IntonationInUnaccompaniedSinging.pdf