The matlab codes permit to reproduce some results in the paper: Chen S, Dong X, Peng Z, et al, Nonlinear Chirp Mode Decomposition: A Variational Method, IEEE Transactions on Signal Processing, 2017. Some of the scripts and examples are adopted from the paper: S. Chen, Z. Peng, Y. Yang, et al, Intrinsic chirp component decomposition by using Fourier Series representation, Signal Processing, 2017, 137: 319-327. and the paper: Chen S, Dong X, Xing G, et al, Separation of Overlapped Non-Stationary Signals by Ridge Path Regrouping and Intrinsic Chirp Component Decomposition, IEEE Sensors Journal, 2017.

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**Tips for users:**

The function *VNCMD.m* requires to input the noise level *var* and, the number of the signal modes should be known in advance. If the information is not available, as discussed in the paper, it is suggested to drop the noise variable and the Lagrangian multiplier for the VNCMD to get a more stable solution. To do so, we should let the input noise variance to zero, i.e., specify *var=0* for the function *VNCMD.m,* and meanwhile we should uncomment the code in line 65 (i.e., *lamuda = zeros(1,N)*) of the function *VNCMD.m*.

The VNCMD is in essence the generalization of the variational mode decomposition (VMD) method. If the instantaneous frequency for VNCMD is constant, the VNCMD will be equivalent to the VMD. Specifically, if the inputted initial IFs are constant and meanwhile the inputted parameter *beta* for function *VNCMD.m* is sufficiently small, the VNCMD will generate similar results as the VMD.

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