

## **A Different Approach to Optimize Fuzzy Membership Functions with Extended FIR Filter**

**Authors :** Jun-Ho Chung, Sung-Hyun Yoo, In-Hwan Choi, Hyun-Kook Lee, Moon-Kyu Song, Choon-Ki Ahn

**Abstract :** The extended finite impulse response (EFIR) filter is addressed to optimize membership functions (MFs) of the fuzzy model that has strong nonlinearity. MFs are important parts of the fuzzy logic system (FLS) and, thus optimizing MFs of FLS is one of approaches to improve the performance of output. We employ the EFIR as an alternative optimization option to nonlinear fuzzy model. The performance of EFIR is demonstrated on a fuzzy cruise control via a numerical example.

**Keywords :** fuzzy logic system, optimization, membership function, extended FIR filter

**Conference Title :** ICECEBE 2016 : International Conference on Electrical, Computer, Electronics and Biomedical Engineering

**Conference Location :** Zurich, Switzerland

**Conference Dates :** January 12-13, 2016