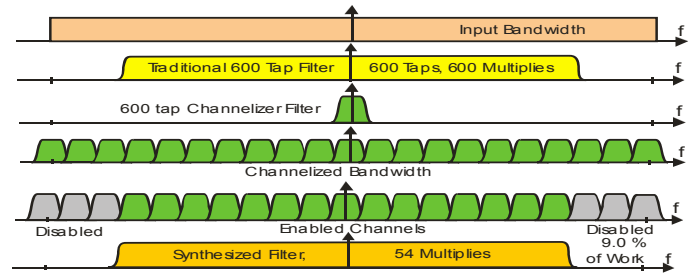


Date/ Time: Tuesday, May 23, 2017
6:30 PM Pizza & Networking
7:00-8:00 PM Presentation

Location: Skyworks Conference Room
Newbury Park, CA 91320
(See RSVP/Directions Below)



Speaker : Prof. fred harris, PhD – San Diego State University

Title : An Order of Magnitude Reduction in DSP Filter Design Area and Complexity

Abstract:

Complexity, area, and programmable flexibility of digital filters is a key challenge in the implementation of both narrowband and wideband communication systems. The presentation will show how to build narrowband filters with more than an order of magnitude reduction of workload. It is not unusual to reduce the workload by factors greater than 10 to 20. The only requirement is that there be a large ratio of sample rate to bandwidth. Once we learn the simple trick to accomplish this reduction we pose the question, Can we achieve similar reduction in workload when there is not a large ratio of sample rate to bandwidth? The answer surprisingly is yes? We will share the recipe for the secret sauce so you too will know how wideband filters can also be implemented with more than an order of magnitude workload reduction. How about two 1400 tap filters replaced with 100 real multiplies?

Biography

fredric j harris holds the Cubic Signal Processing Chair of the Communication Systems and Signal Processing Institute at San Diego State University where he teaches Digital Signal Processing and Communication Systems. His courses include Multirate Signal Processing, Fast Algorithms, Adaptive Algorithms, Modem Design, DSP, and Error Correcting Codes. He was an adjunct member of the Princeton Center for Communications Research and of the Communications and Signal Processing Research Group in the Department of Electrical and Electronic Engineering at Imperial College London.

He has written over 240 journal and conference papers, the most well-known being his 1978 paper "On the use of Windows for Harmonic Analysis with the Discrete Fourier Transform". He is the author of the book Multirate Signal Processing for Communication Systems and has contributed to a number of other books on DSP applications including the "Source Coding" chapter in Bernard Sklar's 1988 book, Digital Communications and the "Multirate FIR Filters for Interpolation and Resampling" and the "Time Domain Signal Processing with the DFT" chapters in Doug Elliot's 1987 book Handbook of Digital Signal Processing, and "A most Efficient Digital Filter: The Two-Path Recursive All-Pass Filter" and the "Ultra Low Phase Noise DSP Oscillator" Chapters in Rick Lyon's 2012 book Streamlining Digital Signal Processing. He is co-author of the book Software Radio Sampling Rate Selection, Design and Synchronization.

In 1990 and 1991 he was the Technical and then the General Chair of the Asilomar Conference on Signals, Systems, and Computers and was Technical Chair of the 2003 and 2015 Software Defined Radio Conference, of the 2006 Wireless Personal Multimedia Conference, and of the Santorini 2013 DSP Conference. He became a Fellow of the IEEE in 2003, cited for contributions of DSP to communications systems. In 2006 he received the Software Defined Radio Forum's "Industry Achievement Award". His paper at the 2006 SDR conference was selected for the best paper award as was his paper at the 2010 Autotestcon conference and again his paper at the 2011 Wireless Personal Mobile Communications Conference and once again at the 2011 SDR conference. He is the former Editor-in-Chief of the Elsevier DSP Journal.

He has extensive practical experience in communication systems, high performance modems, sonar and advanced radar systems and high performance laboratory instrumentation. He holds over 26 patents on digital receiver and DSP technology and lectures throughout the world on DSP applications. He consults for organizations requiring high performance, cost effective DSP solutions. His education includes a Bachelor's Degree in EE from the Polytechnic Institute of Brooklyn (1961), a Master's Degree in EE from San Diego State University (1967) and Ph.D. from Aalborg University, Denmark (2009).

He is the traditional absent-minded professor and drives secretaries, editors, and spell checkers to distraction by requesting lower case letters when spelling his name. He roams the world collecting old toys and slide-rules and riding old railways.

Skyworks, Intersection of West Hillcrest Drive and Lawrence Drive, Newbury Park, CA 91320
(not the main building, please use link below to green arrow that pinpoints building)

<http://maps.google.com/maps?q=34.187542,-118.930994&num=1&t=h&vpsrc=0&ie=UTF8&z=18&iwloc=A>

Register : <https://events.vtools.ieee.org/m/42989>

Buenaventura ComSoc Chapter