Are We Alone? Searching for ET with FPGAs

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ABSTRACT

What is the possibility of other intelligent life in the universe? Can we detect radio, infrared, or visible light signals from alien civilizations? Current and future projects searching for such signals may provide an answer. Dan will describe SETI@home, the new PANOSETI observatory, future searches, and show how FPGAs and new technologies are revolutionizing the search for extra-terrestrial intelligence (SETI).

Dan will also describe the Collaboration for Astronomy Signal Processing and Electronics Research (CASPER) open source hardware, tools and libraries for FPGA based radio astronomy instrumentation that produced the first images of the black hole and discovered many fast radio bursts, pulsars, and a planet made from solid diamond.

Next generation radio telescopes will be composed of hundreds to thousands of smaller telescopes; these large arrays require peta-ops per second of real time processing to combine telescope signals and generate spectral-images. Dan will describe these telescopes and their real time signal processing systems.

Open source hardware, software, libraries, tools, reference designs and video training are available at http://casper.berkeley.edu

Keywords: SETI; Digital Signal Processing; Extraterrestrial Intelligence; Radio Astronomy Instrumentation

BIOGRAPHY

Dan Werthimer was in the "Homebrew Computer Club" with Steve Jobs and Steve Wozniak; everyone in that club became ultra-rich, except Dan, because he wanted to search for ET.

Although Dan isn't ultra-rich, he is the Marilyn and Watson Alberts SETI Chair, chief scientist of UC Berkeley's SETI Research Center, principal investigator of SETI@home and the Collaboration for Astronomy Signal Processing and Electronics Research (CASPER). Dan has testified to congress about SETI; he is co-author of "SETI 2020", editor of "BioAstronomy: Molecules, Microbes and Extraterrestrial Life" and "Astronomical and Biochemical Origins and the Search for Life in the Universe". He has been Associate Professor in the engineering and physics departments of San Francisco State University and a visiting professor at Beijing Normal University, the University of St. Charles in Marseille, and Eotvos University in Budapest. He has also taught at universities in Peru, Egypt, Ghana, Ethiopia, Zimbabwe, Uganda and Kenya.

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