

**GETTING THE WORLD ACTIVELY INVOLVED IN SETI SEARCHES.** J. C. Tarter<sup>1</sup>, A. Agrawal<sup>1</sup>, R. Ackermann<sup>1</sup>, S. K. Blair<sup>1</sup>, M. T. Bradford<sup>1</sup>, D. M. Cooper<sup>2</sup>, G. Harp<sup>1</sup>, J. Jordan<sup>1</sup>, T. Kilsdonk<sup>1</sup>, K. E. Smolek<sup>3</sup>, K. Randall<sup>1</sup>, R. Reid, J. Ross<sup>1</sup>, G. S. Shostak<sup>1</sup>, D. Vakoch<sup>1</sup>, <sup>1</sup>SETI Institute, 515 N. Whisman Road, Mountain View, CA 4043, jtarter@seti.org, and firstinitialsurname@seti.org, <sup>2</sup>Open Source Diva, danese@gmail.com, <sup>3</sup>Maxima Software Inc. P.O. Box 50881, Eugene, OR 97405, kes@smolek.com.

**Introduction:** In February of 2009, the TED organization (Technology, Entertainment, and Design) and its parent body, the Sapling Foundation [1] committed to helping enable a particular wish to change the world made by J. C. Tarter: "*I wish that you would empower Earthlings everywhere to become active participants in the ultimate search for cosmic company.*" The motivation behind this wish is the extraordinary power that SETI has to encourage individuals to reconsider their place in, and intimate connection with, the universe, and to adopt a more cosmic perspective, to internalize the commonality of all human Earthlings, and ultimately to trivialize the differences among them. Of all human pursuits, SETI is one that ought to be global by its very nature; detection of evidence of another distant technology will change everything for all of us. This wish was made in light of the current state of digital and social-networking technologies, which may now be able to achieve a new level of globalization. This paper describes a year of progress in concretizing the various aspects of the wish, and in learning to take full advantage of a non-traditional source of support for astrobiology and scientific research.

**The World Is Ready To Get Involved:** A decade ago, the introduction of the innovative distributed computing effort called SETI@home [2], and its rapid adoption by millions of computer users around the world, demonstrated that SETI is something that ordinary people want to be involved in. The popularity of this program put distributed computing on the map and eventually gave rise to the active community of citizen scientists who participate in dozens of scientific research programs today. There is appetite for more involvement; for ways in which these citizen scientists can contribute more than service computing by actively improving the projects in which they participate.

**A Wish In Three Pieces:** There are three different categories of individuals that we want to engage with us using the newly commissioned Allen Telescope Array (ATA) [3] at the Hat Creek Radio Observatory in Northern California in order to improve the speed, sensitivity, and scope of our searches for engineered signals, and thereby improve our chances for a successful detection. The open source community of software developers will be able to work with our existing published code base to improve its efficiency

and ease of use, while adding features that will enhance visibility into the real-time search and provide the world with a way of checking in on our progress. The community of software and communications engineers and students with technical understanding of digital signal processing will be able to help us expand the types of signals that our searches can recognize. Existing algorithms are well suited to a class of signals characterized by extreme frequency compression, but are not a good match to complex signals of higher dimensionality. (Talk by S.K. Blair in this session). The cost of computing is now becoming sufficiently low, and hosted storage (for raw time-series data from the ATA) along with cloud computing resources are being made available in support of this wish, so that we can challenge these DSP-savvy individuals to produce clever, more sensitive signal-detection algorithms that are capable of being implemented within real-time observing programs on the telescope. The third group of individuals is everybody else; the crowd. These are the people whose help we want most, because this is how the world will change. We are planning to use a combination of social-networking and gaming technologies to build a vibrant, passionate, and strongly-connected community (or a tribe in the terminology of Seth Godin [4]). This tribe helps us by participating in the real-time search using their eyes as pattern-recognition tools to augment the extant set of implemented algorithms and to decide whether the next observation should follow up on a signal they have discovered. They help themselves by connecting to one another and using the SETI framework to better understand their human sameness, when contrasted with an independently-evolved technological civilization elsewhere.

**References:** [1] Anderson, C., TED curator, <http://www.ted.com/pages/view/id/42>. [2] Anderson, D., Werthimer, D., Cobb, J., Korpela, E., Lebofsky, M., Gedye, D. and Sullivan, W.T. (2001) "SETI@home: Internet Distributed Computing for SETI" in Bioastronomy 99: A New Era in the Search for Life, ASP Conference Series Vol. 213, G. Lemarchand, K. Meech (eds.). [3] Welch, W.J. *et al* (2009), *Proceedings of the IEEE, Special Issue: Advances in Radio Telescopes*, 97, 1438-1447. [4] Godin, S.

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