Sunny Dutra, a recent graduate of Yale University, is the winner of the 2016 Smadar Levin Award. Members of the newsletter committee had the great pleasure of interviewing Sunny on her career path, research program development and future plans.

Sunny's journey began as an undergraduate at the University of California, Santa Barbara. It was there that she completed her honor's thesis in the Center for Evolutionary Psychology (CEP) under the mentorship of Leda Cosmides, PhD. While in the CEP one day, a researcher told Sunny that a career in science can afford one the unique opportunity to create new knowledge, knowledge that has never existed before in the world. She wondered, "What could ever be more meaningful, or more important, than creating new knowledge?", and now remembers this as the moment she decided to pursue a career in research.

Sunny noted that she has always been fascinated by mood disorders and the ways they can alter an individual's fundamental experience of the world. This curiosity led her to her lab manager position under Dr. Diego Pizzagalli at Harvard University after graduating college. There, she began to learn about neuroimaging, anhedonia and depression, eventually honing in on the neuroscience of reward processing. Sunny expressed gratitude to Dr. Pizzagalli for the many opportunities in his laboratory that helped to build the foundation for her research interests moving forward.

When she entered graduate school, Sunny reconnected with Dr. June Gruber (picture above with Sunny). She and Dr. Gruber had originally met when Dr. Gruber was a graduate student at UC Berkeley and Sunny was a summer research assistant with Dr. Gruber. They maintained their connection and had
very similar research interests in the ways that reward and positive emotion can go awry and contribute to psychopathology. Even before Sunny entered graduate school, they began designing a large research project from which Sunny’s dissertation data were collected. Sunny stated that one of Dr. Gruber’s strengths is her ability to organize all of the necessary resources and personnel to smoothly and efficiently coordinate all aspects of a large research study. Sunny is grateful for Dr. Gruber’s mentorship, guidance, and generosity throughout graduate school that allowed her to successfully complete her dissertation.

Sunny’s dissertation focused on the neural underpinnings of reward related dysfunction in bipolar disorder. At the trait level, people with bipolar disorder show elevated sensitivity to rewards and persistent positive emotion. Sunny wanted to understand the neural underpinnings of this process in terms of regional activation and functional connectivity. To do this, she used a modified version of a Monetary Incentive Delay task developed by Dr. Brian Knutson and colleagues. However, they also wanted to understand the processing of social rewards, so they designed a parallel task in which participants earned social praise as a reward. Sunny noted that a great deal of research uses money as a reward, but as reward vary, so it is important to capture this diversity. Results indicated that both monetary and social reward elicited greater striatal activation. They also found that when participants with bipolar disorder expected to receive a reward but didn’t, there was a reduction in frontostriatal functional connectivity. This suggests a failure to “put on the brakes” in reward pursuit, despite signals to slow down and reevaluate.

Results indicated that both monetary and social reward elicited greater striatal activation. They also found that when participants with bipolar disorder expected to receive a reward but didn’t, there was a reduction in frontostriatal functional connectivity. This suggests a failure to “put on the brakes” in reward pursuit, despite signals to slow down and reevaluate.

Regarding her future, Sunny has just finished her internship at the Boston VA and is staying to complete a T32 postdoctoral fellowship at Boston University/VA Boston under the mentorship of Dr. Brian Marx. She plans to study individual differences in reward processing under stress, addressing questions regarding similarities and differences in anhedonia between depression and PTSD. She is also interested in examining whether we can better predict suicide in veterans by improving our understanding of alterations in reward processing in anhedonia. Ten years from now, Sunny envisions herself continuing to conduct research on reward processing dysfunctions and their contributions to psychopathology.
Sunny described her mentoring relationship with Dr. Gruber as being an invaluable learning experience because of Dr. Gruber’s fresh perspective and openness to developing new ideas. In particular, she appreciates learning from Dr. Gruber about ways to shape big ideas into reality, coordinating large teams of undergraduate and graduate trainees to work on large-scale studies. Furthermore, being Dr. Gruber’s first graduate student allowed her to be involved in key decisions in the development of a research lab from its beginning stages and provided her with the unique opportunity to think about the long-term future of the lab together.

When asked about advice for up and coming researchers, Sunny particularly appreciates that Dr. Gruber encouraged her to think from early on about developing an independent research program. Sunny attributes much of her success in research and clinical work to thinking about an overarching framework of the larger questions she is interested in addressing, rather than approaching her work as a compilation of individual projects. She says that having a continuous dialogue about focusing her interests guided her in figuring out projects she wanted to be involved in and allowed her to maximize her investment in projects that build upon each other.