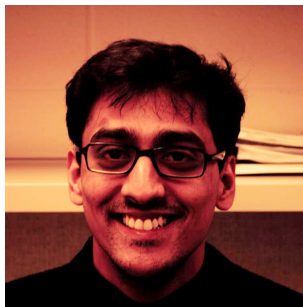# Using Machine Learning to Understand Public Preference Toward Landscape Design

The Brown Dog project funds roughly a dozen Ph.D. and Masters students across its use cases to help drive activities within the supported scientific domains. Today we would like to congratulate Ankit Rai, Ph.D. who successfully defended his Ph.D. thesis this month. Ankit, working with Co-PI Barbara Minsker, has worked at the intersection of Informatics, Civil Engineering, and Social Science:

"My research work primarily addressed the limitation of current approach in studying landscape preferences by using advanced data science techniques. As a part of this work, a novel framework is created for identifying urban green storm water infrastructure (GI) designs (wetlands/ponds, urban trees, and rain gardens/bioswales) from high-resolution Google Earth images using state of the art computer vision and machine learning methods. The GI identification framework was also validated as an approach for collecting landscape preference data towards improving the understanding of what specific features are most desired. Previous research has shown that high-preference green settings are correlated with improved human health and well being. We further curated social media data using Twitter, Flickr, and Instagram to analyze GI preferences using qualitative codebook analysis and natural language processing techniques. The models and findings are implemented as Brown Dog services allowing others to leverage these tools as opposed to having to re-implement these capabilities within their research when using similar datasets"

As part of his research Ankit has developed a number of extractors to assign a green index to pedestrian routes based given path coordinates, automatically estimate human preference of landscapes given either images or text describing those landscapes, detect green infrastructure types within aerial images, as well as versions of these extractors capable of operating on data contained within social media feeds such as Twitter, Flickr, and Instagram.

To use these tools and more simply sign up for a Brown Dog account!:

https://browndog.ncsa.illinois.edu