

“Understanding Information-Energy Interactions”: Annual Report 2016

Existing team: Yaoqing Yang, Sanghamitra Dutta, Praveen Venkatesh, Haewon Jeong, Karthik Ganesan, Pulkit Grover

The team remains the same

Team interaction/meetings:

- Pulkit and Karthik successfully published a work with Andrea Goldsmith and Jan Rabaey to IEEE Journal of Selected Areas in Communication that shows why Shannon-capacity is the incorrect goal to aim for for total power minimization.
- Haewon, Praveen, Yaoqing, and Sanghamitra discussed ideas on information-energy interactions at the North American School on Information Theory (NASIT, 2016).
- Pulkit and Karthik met at the sidelines of Asilomar 2015 (November 2015)

Presentations/posters/papers:

- Haewon, Praveen, Yaoqing, and Sanghamitra presented posters at NASIT.
- Sanghamitra presented a poster at
- *Karthik Ganesan, Pulkit Grover, Andrea Goldsmith, Jan Rabaey, “Towards approaching total-power-capacity: transmit and decoding power minimization for LDPC codes,” Published in IEEE JSAC, Feb 2016.*
- *Praveen Venkatesh and Pulkit Grover, “Is the direction of greater Granger causal influence same as the direction of information flow?” to be presented at Allerton '15 and Society for Neuroscience (SfN) annual meeting, 2015.*

Notable progress/outcomes:

- 1) Experimental corroboration of Pulkit and Andrea’s earlier results on energy-efficient communication published in IEEE JSAC
- 2) Pulkit and Praveen got a paper accepted in the American Epilepsy Society that shows why the increase in the Shannon capacity of high-density EEG interfaces leads to increase in detection probability of certain neural ailments.