The LCDM is a UIUC-NCSA collaboration to apply machine learning to large astronomical datasets and study cosmological statistics. We present:

- **Classifications** of the form $P(\text{galaxy, star, neither})$ for $1.43 \times 10^6$ SDSS objects using decision trees
- **Improved quasar photometric redshifts** without regions of ‘catastrophic failure’ using kNN
- **Probability density functions** in redshift for galaxies and quasars in the SDSS and SDSS+GALEX
- LRAC access to NCSA supercomputing allows powerful implementation
- All classifications and photometric redshifts are **blind-tested**
- PDFs allow much-improved subsamples of quasars
- **Future work** will be +IR and COSMOS, possibly FPGAs and GPUs
- For more information see Ball et al. 2006, 2007a, b (Ball, N on ADS or http://nball.astro.uiuc.edu under publications; 2007b is in prep)