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Research Interests	Statistical Learning Theory, Empirical Process Theory, Concentration of Measures Phenomenon, Convex Optimization, Machine Learning
Education	<p>Ph.D. Candidate - Computer Science (Advisor: Sham Kakade) Sep '06 – Current Toyota Technological Institute, Chicago</p> <p>M.S. - Computer Science (Advisor: Venu Govindaraju) Aug '04 – Jun '06 University at Buffalo, State University of New York, GPA : 3.96</p> <p>Bachelor of Engineering - Computer Science Aug '00 – Jun '04 M.S. Ramaiah Institute of Technology (MSRIT), Bangalore, India 78% aggregate, 1st class distinction</p>
Experience	<p>Research Work at TTI, Chicago Sep'06 - Current</p> <ul style="list-style-type: none"> 🕒 Multi-view Learning Under Information Theoretic Assumption (with Sham Kakade): A theoretical framework for classification using multiple input variables that share information about the label is provided. Under the framework, effective semi-supervised learning is shown possible. Methods like co-regularization and CCA based algorithms are also analyzed. 🕒 Estimation Rates for Regularized Linear Classifiers (with Nathan Shrebro): The convergence rate of expected loss and objective values for algorithms like SVM and other regularized linear classifiers with respect to number of training samples is analyzed. <p>Research Work at Center for Unified Biometrics and Sensors, SUNY Buffalo Aug'04 – Jun'06</p> <ul style="list-style-type: none"> 🕒 Probabilistic Face Retrieval Based on Semantic Description: An interactive face retrieval system was built that automatically retrieves faces from a face-database matching the attributes such as “hair type”, “spectacle use” etc., provided by the users. The query system was user adaptive. 🕒 Facial Expression Recognition: Based on “Face Action Units”, facial expression of a person in a given video is automatically recognized. The face is modeled for this purpose using Active Appearance Model. <p>Other Projects:</p> <p>Netflix Challenge: Using Hierarchical Dirichlet Process Models, the task of guessing the ratings a user would give a particular movie based on his/her historical ratings and all users' ratings for similar movies was accomplished.</p> <p>Automatic Facial Recognition and Analysis: A graphical model was used to model the face and perform face recognition. In this model, the observed variables are image patches and latent variables represent intuitive facial parts like nose region, eye region, etc.</p> <p>AROMA - A Recursive Optimization method using Multi-resolution Analysis: A parallel stochastic optimization technique that only needs to evaluate the function at a few randomly sampled set of points.</p> <p>Musical Instrument Recognition: (Undergraduate project) Cepstral Co-efficients and power spectral density were used as features with a Gaussian mixture model to predict the musical instrument playing in the sound file.</p>

Publications	<p>Conferences and Workshops:</p> <ol style="list-style-type: none"> 1. Competitive Mixtures of Simple Neurons <i>Karthik Sridharan</i>, Matthew J Beal, Venu Govindaraju (International Conference on Pattern Recognition 2006) 2. Identifying handwritten text in mixed documents Faisal Farooq, <i>Karthik Sridharan</i>, Venu Govindaraju (International Conference on Pattern Recognition 2006) 3. Classification of Machine Print and Handwritten Arabic Documents <i>Karthik Sridharan</i>, Faisal Farooq, Venu Govindaraju (Symposium on Document Image Understanding Technology, 2005) 4. A Sampling Based Approach to Facial Feature Extraction <i>Karthik Sridharan</i>, Venu Govindaraju (IEEE AUTOID 2005. Best Paper Award - Second Prize, pp.51-56) 5. A Probabilistic Approach to Semantic Face Retrieval <i>Karthik Sridharan</i>, Sankalp Nayak, Sharat Chikkerur and Venu Govindaraju (AVBPA 2005) 6. A Dynamic Migration Model for Self-adaptive Genetic Algorithms K.G. Srinivasa, <i>Karthik Sridharan</i>, P. Deepa Shenoy, Venugopal K.R., L.M. Patnaik (International Conference on Intelligent Data Engineering and Automated Learning) 7. An Effective Content-Based Image Retrieval System Using STI features and Relevance feedback K.G. Srinivasa, <i>Karthik Sridharan</i>, P. Deepa Shenoy, Venugopal K.R., L.M. Patnaik (International Conference on Knowledge Based Computer Systems) 8. EASOM: An Efficient Soft Computing Method for Predicting the Share Values K.G. Srinivasa, <i>Karthik Sridharan</i>, P. Deepa Shenoy, Venugopal K.R., L.M. Patnaik (International Conference on Artificial Intelligence and Applications (AIA 2004)) <p>Journals:</p> <ol style="list-style-type: none"> 1. A Neural Network based CBIR System using STI Features and Relevance Feedback K.G. Srinivasa, <i>Karthik Sridharan</i>, P. Deepa Shenoy, Venugopal K.R., L.M. Patnaik (Journal on Intelligent Data Analysis, 2006, IOS Press.) <p>Master's Thesis:</p> <p>“Semantic Face Retrieval” , 2006</p>
Awards	<p>Best Paper Award – Second Prize - IEEE Automatic Identification Advanced Technologies (AutoID 2005)</p> <p>Young IT Professional Award 2003, South Regional of Computer Society of India, Bangalore.</p>
Skills	<p>Technologies: C++/C, HTML, Java, SQL, SML, Matlab, QT, GTK, CGI/Perl ,openGL.</p> <p>Operating Systems: Unix, Linux, Windows, OS X.</p>
Other Interests	<p>Listening to Music (Playing Carnatic music on the flute) Rock climbing, Biking, Hiking</p>
References	<p>Will be furnished on request.</p>