



- A Novel Genetically Optimized Neural Network model, hybrid model used for the detection of breast cancer, achieved a classification accuracy of 99%.
- Enhanced Cluster Validity Index for the Evaluation of Optimal Number of Clusters for Fuzzy C-Means Algorithm, a validity index for clustering of protein sequences. Identify the optimal number of clusters for protein data.
- Advanced Quantum based Binary Neural Network algorithm, which generate a quantum separability plane to classify non linear separable problem. (Liver Disease diagnosis)

### *Hyperlinks:*

<http://people.iiti.ac.in/~phd12110102//publication.html>

<http://people.iiti.ac.in/~phd12120103/publication.html>

<http://people.iiti.ac.in/~phd13010201003/publication.html>

<http://iiti.ac.in/people/~artiwari/publications.html>



We present a new variant of an existing linear solver (BiCGSTAB). Using our algorithm for model reduction, which is a technique for producing surrogate model of much smaller dimension, gave very good results. We show about 40% savings in the number of matrix-vector products and about 35% savings in runtime.

One practical application where such a challenge arises is micro-electro-mechanical systems (MEMS) design.

K. Ahuja, P. Benner, E. de Sturler, and L. Feng, [Recycling BiCGSTAB with an Application to Parametric Model Order Reduction](#). SIAM J. Sci. Comput. (submission in Jun 2014; minor revision in Jan 2015).

[Earlier version](#) published as a Max Planck Tech Report.



## Fault Resilient High Level Synthesis for Mobile Electronics

Simultaneous design space exploration (DSE) of kc-cycle transient fault-secured datapath and loop unrolling factor (UF) for control data flow graphs (CDFGs) during high-level synthesis is an unsolved problem in the literature. The aforementioned problems are solved with the following specific contributions.

Publication details for this result: <http://digital-library.theiet.org/content/journals/10.1049/el.2014.4393>

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