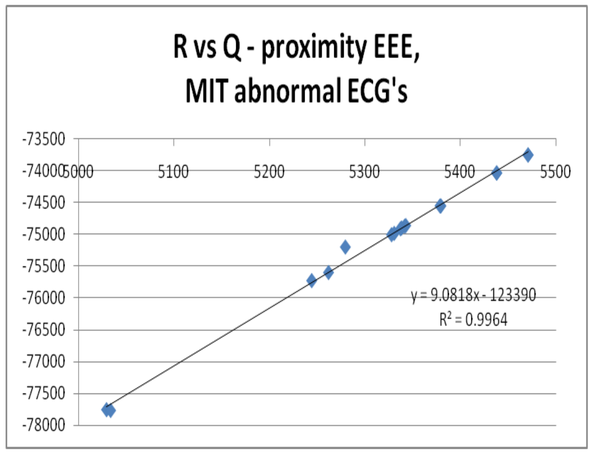
Patterns of Patterns

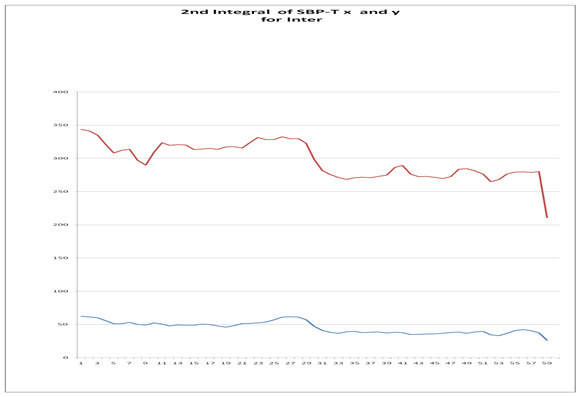
Basic Techniques

Vector-Fusion - "SBP" :

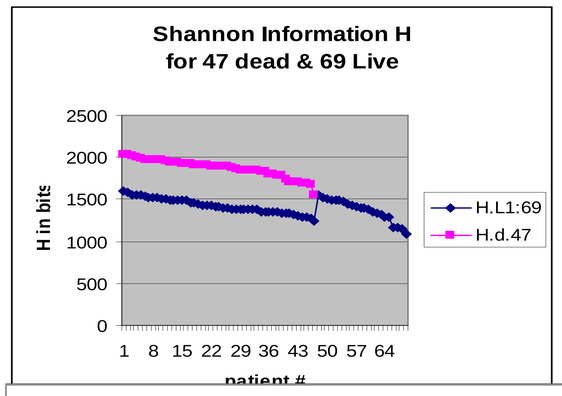
1. Vector-summed Radial-coordinates
R is radius, q is angle of sum
EEE is Exact-Euclidean distance
MIT cardiac data
points are vector-sums, one per patient, 100,000 dimensions



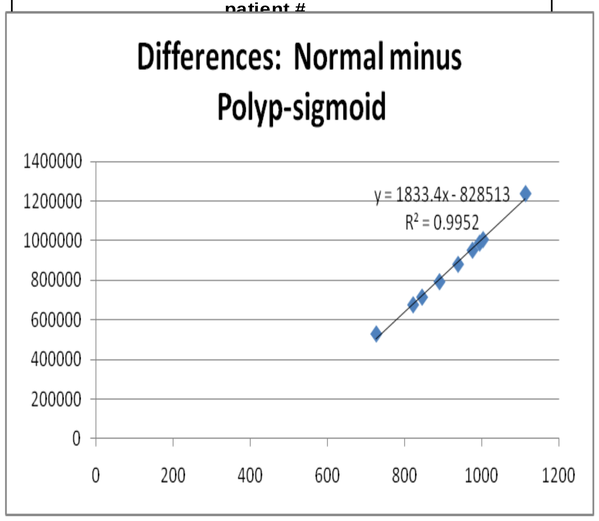
2. SBP-T is on rows-transposed, ie, vector-sums by column
Inter is Williams syndrome
chart plots Normal and Williams
20,000 dimensions per patient



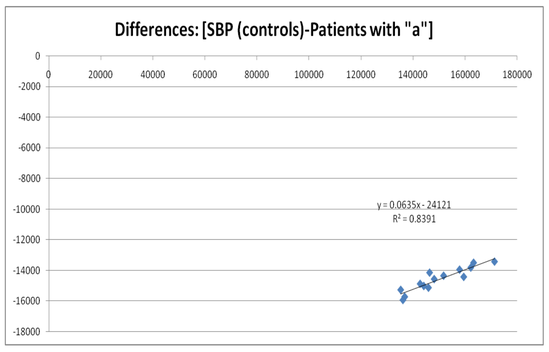
3. Colon-cancer data
50,000 genes-50,000 dimensions
69 patients survive 36 months
47 patients don't
99% accuracy differentiation using only their data analyzed with Shannon Information H



4. Colon-cancer data, 40,000 genes
30 Normal, 9 polyp-sigmoids
Differencing between gev of Normal patients and patients with polyp-sigmoid class.

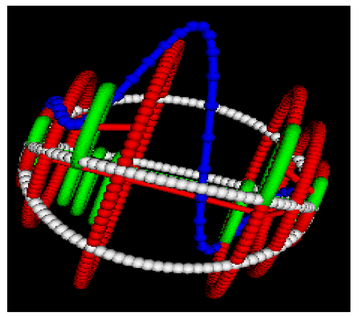


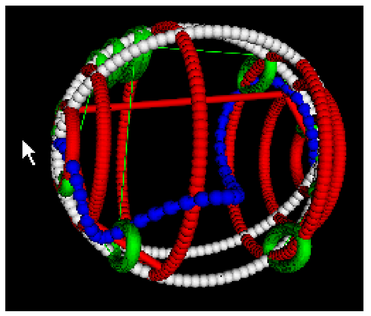
5. Differences used to distinguish Normal from Williams syndrome patients.
Each dot represents one person from their 22011 genetic data. The Normals here are parents with offspring that have Williams syndrome; the patients with an "a" are those offspring. Note the linear final pattern of Patterns.

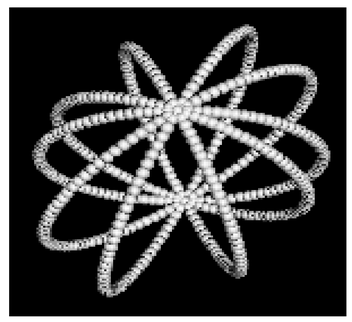


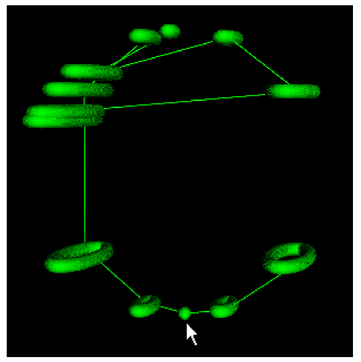
Multi-Dimensional Geometry Examples of SBP

4-dimensional sphere
Blue is a helix
White are longitudes
Red is first set of latitudes
Green is second set of latitudes



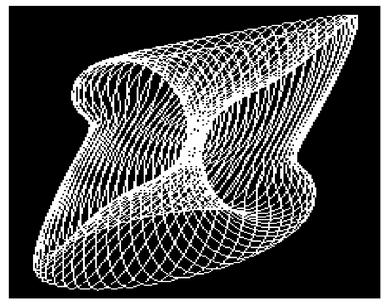


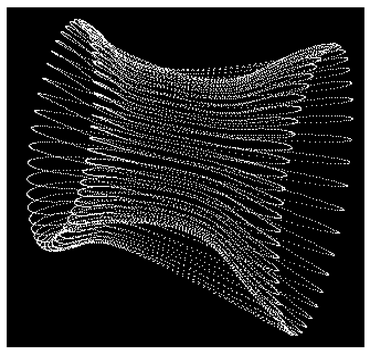


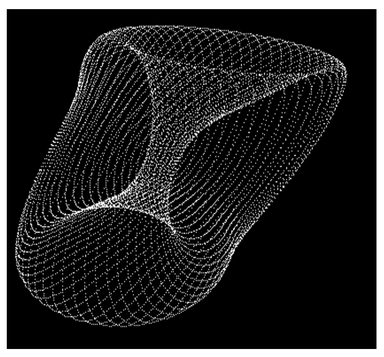


The purpose of these color charts is to visualize what SBP does on 4D data. It does the same on 100,000 D data.

4-dimensional torus







Purpose of this Poster is to demonstrate that it takes the patterns of values in all the many dimensions to place each patient in the final patterns shown in each of the 5 charts The final patterns determine the ability of each technology to identify or distinguish patients in each class.
It is patterns of many genes, not one gene, determining class membership.

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