



We combine predictive data analytics, behavioral sciences, and innovative technology into one approach

SoftMath Analytics is a Research and Development Company specializes in big data analytics with innovative methods and demanding software technologies.

Our members are PhD scientists with over 40 years of combined research and development experience in computational mathematics, statistics and software solution development. We can bring together statistical prediction and computational heuristics to model uncertainties with efficiency and ease of implementation. As highly focused and innovative research group, we bring practical approach and innovation together.

SoftMath Services

- Develop new methodologies and modify the existing methods in practice for predictive analytics and modeling for data driven problems
- Develop AI and ML algorithms to identify patterns in real-time distributive streaming data.
- Statistical modeling: multivariate regression analysis, logistic regression, singular value decomposition, PCA, cluster analysis (hierarchical, k-means), Bayesian and Support Vector Machines (SVM).
- Operations Research modeling: Combinatorial maximization and minimization of Submodular function, geometrical modeling with simplicial complexes and adopting Submodular function minimization for parametric modeling.
- Business Analytics, Quantitative Methods. Price prediction
- Information retrieval and visualization for real-time data streams
- DNA analysis, logfile Analytics, ECG data Analytics

Software Experience

- SQL databases data analysis and information retrieval with SAS/SPSS
- NoSQL databases, streaming distributive data manipulation with IBM InfoSphere Streams Programming language (SPL)
- C/C++, R, Python, MATLAB
- GIS data analysis and Interactive Data Language (IDL)
- OS: Windows, UNIX, Linux
- Educational software: Blackboard, Moodle, Pearson and Wiley educational software for teaching mathematics.

Cloud Solutions

HADOOP, SPARK



Our Product Overview

Patient Care Profile Analytics (**PCPA**)

Dedicated to learning about and understanding health and well-being of the population. Who is at most risk? Is it possible to build an algorithm that estimates risk, based on a few sample variables?

Our PCA provides simple **Profile Solution** for data reduction of the massive data sets and shows information better than modeling.

Text Analytics - Classification and Author Prediction (**TACAP**)

Every author has a style of his or her own. Our text style prediction algorithm predicts the author of disputed article or text.

Stock Market Prediction and Analytics (**SMPPA**)

The NASDAQ self-generated stream serves as a model for high –velocity streams. Our real time forecasting algorithm updates with a simple formula updates the past information rapidly and forecasts accurately

Political Campaign Contribution Analytics (**PCCA**)

Our dictionary mapping algorithm links political party to recipient and identifies the candidate committee.

Real Estate Property Analytics (**REPA**)

Our real-estate prediction algorithm uses USGIS and environmental data and local neighborhood characteristics and market data variables to predict value of the properties. Our niche is predicting land values of developed land.

Organizations benefitted from our Solutions

- UPSTREAM research (www.upstream.research.com)
- US Department of Veterans Affairs (www.va.gov)
- Montana Department of Revenue (<https://mtrevenue.gov>)
- National Security Agency, NSA (www.nsa.gov)
- Rocky Mountain Research Station, USDA (<https://www.fs.fed.us/rmrs/>)
- USDA Forest Service Missoula Fire Sciences Lab (www.firelab.org)
- NASA (<https://www.nasa.gov>)
- Fish, Wildlife, and Parks (www.fwp.mt.gov)



Areas that can apply our solutions but not limited to

- Health Care
- Government
- Sensor Data Analytics – Oil and Natural Gas
- Cyber-Security
- UMV-operations
- Airport Security

Our Network

- ❖ Statistics & Applied Math CORE (SAMC)
Department of Mathematical Sciences - University of Montana
<http://hs.umt.edu/math/research/core.php>
- ❖ Defense Critical Language and Culture Program (DCLCP)
Mansfield Center- University of Montana
<http://www.umt.edu/mansfield/dclcp/>
- ❖ Deep Analytics, LLC
<https://www.linkedin.com/in/phil-stimac-ph-d-2b83871a/>
- ❖ N-SITE, LLC
<https://www.linkedin.com/in/alexphilp/>
- ❖ Pythagoras Consulting, PLLC
<http://www.pythagoraspllc.com>
- ❖ SDL*Government
<http://www.sdlgov.com/>

Our Scientific Publications and Presentations

1. Steele B, Chandler J, Reddy S., 2016 ., Algorithms for Data Science. Springer. p 430.
2. Reddy S, NVSBE, 2016-Nov 1-3 Minneapolis, Talk: Health Care Analytics Diabetes Prevalence and Incidence among the VA Health Care Users and VA Expenditures.
3. Reddy S, Haralson R, 2015-Mar2-5, Designing a Novel Estimation Model-Methodology for State-Wide Property Tax., The report is prepared to present at the 19th Annual GIS/CAMA Technologies Conference 2015 GIS/CAMA Technologies Conference held in Oklahoma City, Oklahoma. US.
4. Reddy, S., 2015., Residential Property Value Estimation Via Linear Mixed Model Methods. Journal of Property Tax Assessment & Administration 12-2, 73-93.
5. Steele, B.M., Reddy, S.K., Keane, R.E., 2006. A methodology for assessing departure of current plant communities from historical conditions over large landscapes. Ecological Modeling 199, 53-63. http://www.fs.fed.us/rm/pubs_other/rmrs_2006_steele_b001.pdf



6. Steele, B.M., Reddy, S.K., and Nemani, R.R., 2005. A Regression Strategy for Analyzing Environmental Data Generated by Spatio-Temporal Processes. *Ecological Modeling*, 181, 93-108.
7. Nemani R., White., Thornton,P., Nishida,K., Reddy.S., Jenkins,J., and Running,S., 2002. Recent Trends in Hydrologic Balance have Enhanced the Terrestrial Carbon Sink in the United States. *Geophysical Research Letters*. 29(10), 1468, doi:10. 1029/2002GL014867. Is available @:<http://geo.arc.nasa.gov/sge/ecocast/publications/pubs/nemani-grl.pdf>
8. Reddy, S.K., 2001. Montana Chapter Meeting of the American Statistical Association . Butte. Analysis of the Relationship between Sea and Land surface Climate and Carbon Budget 1900-2000for the United States, Conference preprint October 12, 2001.