Bhugol GIS Pvt. Ltd.
Spatial Knowledge Management

SINE | IIT Bombay

Connect the Dots
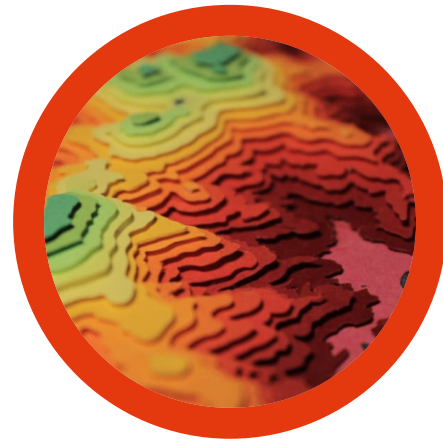## ...Foresee the Future

Know Us

Founded and Incubated at Society for Innovation and Entrepreneurship (SINE) at the Indian Institute of Technology Bombay (IITB). **Bhugol GIS** is a technology and analytics firm with its own proprietary tool, **GRAM++.** Gram is an acronym for Geo-Referenced Area Management, featuring robust Mapping, Data Analytics and Image Processing capabilities.

Based on unique algorithms and data analytics models researched and developed at the Centre of Studies in Resource Engineering, IIT Bombay - **Bhugol GIS** has developed a comprehensive suite of products that have competency in developing solutions based on Geographical Information System (GIS), Cognitive Data Analysis Matrices and Complex Image Processing templates.

Our Internationally recognised and Award-winning GIS software, **GRAM++** was developed with support from a project initiative of the United Nations Development Program (UNDP).

GRAM++ and its suite of products provides solutions for assessing and managing multi-dimensional risks across a wide spectrum of contemporary challenges that require to be analysed and managed through a dedicated Spatial Knowledge Management approach.

Bhugol GIS approach and tools are especially suited to deliver results for Local Development Planning, Data and Image Analytics related to Smart City Infrastructure, Social and E-Governance, Climate Change Impact, Forestry and Natural Resources attrition, Disaster Responsiveness, Infrastructure Planning and Development with Risk Assessment resulting from Social, Fiscal and Economic changes.

Products

Bhugol GIS Pvt. Ltd. is positioned uniquely as the sole distributor and developer of the full featured software product, GRAM++. In addition, we provide a web based GIS solution in the name web GRAM Server, a GRAM++ toolkit - a set of components that can be easily customized in a front-end language e.g. Visual Basic or Visual C++ to build a customized application for the end user. Also on offer is e-Tutor an interactive self-learning tool that allows the user to learn the concepts of GIS through theory, quizzes, hands-on exercises and other interactive features.

GRAM++

A complete Geographic Information System (GIS) software package developed to provide visual analytics in the spatial mapping domain. The software was developed in conjunction with the Centre of Studies in Resources Engineering, IIT Bombay. Advanced features including Import/Export of different format data, Map Editing, Raster Analysis, Vector Analysis, Network Analysis, Terrain Modeling and Watershed Delineation, Digital Image Processing, and Map Layout.
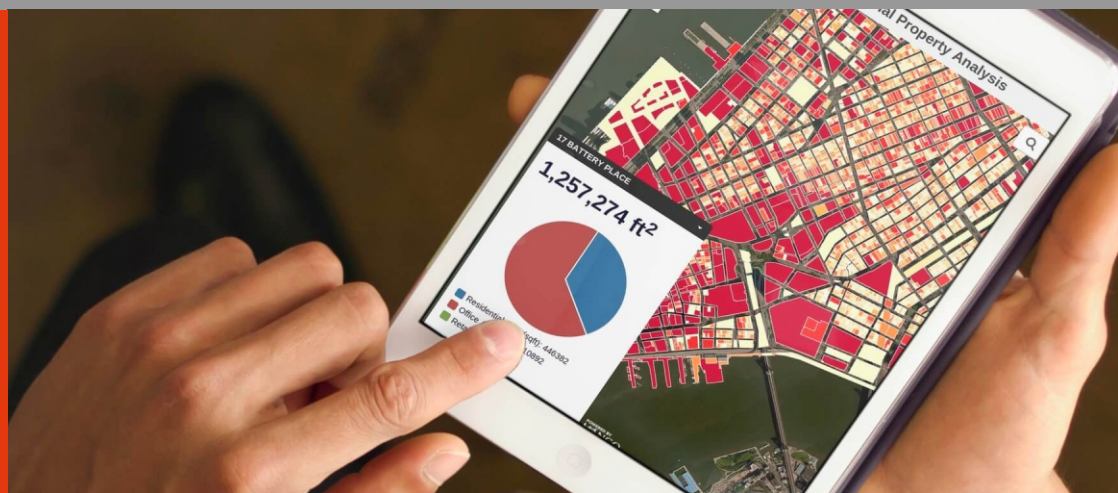
Web GRAM Server

Manage your Spatial Data with visualization capabilities of zooming and information tools. It comes with out-of-the-box services for Spatial Data Management, Visualization, and Spatial Analysis. Web Gram Server offers open access to extensive GIS capabilities that enable organizations to publish and share geographic data, maps online. High performance GIS applications can be built using Web Gram Server.

e-Tutor

An interactive platform to learn and develop GIS skills with interactive modules containing text, graphical illustrations and extensive hands-on exercises. Advanced modules include deep dive into technical GIS functions such as network analysis and database queries illustrated through graphical animations. A self-contained software package and sample data to provide hands-on training on GIS functionality.

" The Future for Me is already a thing of the past.
- Bob Dylan

VecViewer

VecViewer is a simple yet powerful tool that helps users in retrieving, displaying and querying on their data sets available on GRAM++ GIS database. Cartographic layouts based on user's query can be prepared and printed for subsequent use.

GRAM++ DPT

Data Preparation Toolkit (DPT) is a customized stand-alone subset of GRAM++ that helps users prepare and organize data sets in an error-free and topologically structured format useful in developing GIS databases. The tool also supports map layout to compose cartographic quality maps.
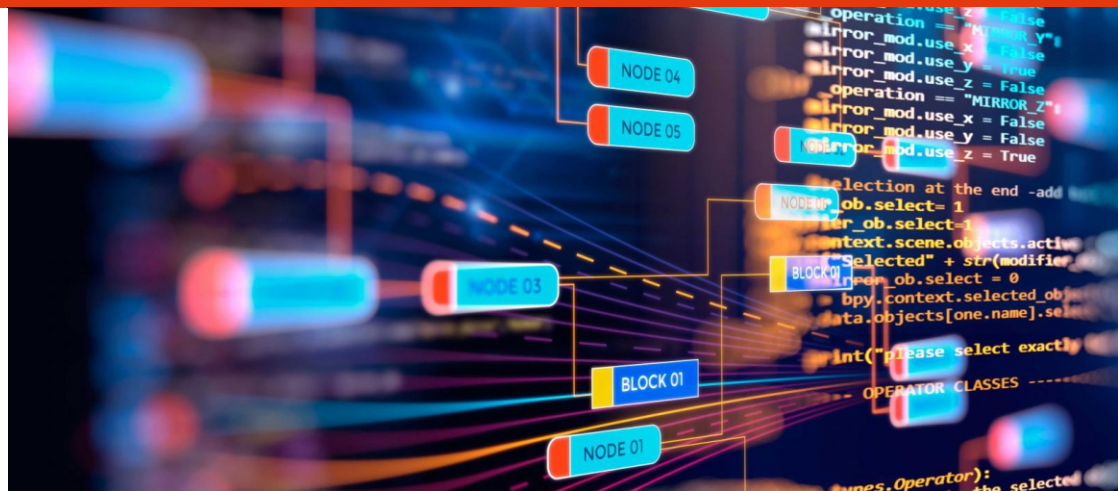
GRAM++ RAK

Raster Analysis Kit (RAK) is a tool for Spatial Modeling. Within the GIS environment, Spatial Modeling is an important requirement in applications like Land Suitability Analysis, Soil Erosion Assessment, Watershed Delineation, Water Resources Budgeting and Environmental Impact Studies.

Easy GIS Toolkit

The run-time versions of Easy GIS Toolkit serve a wide range of applications. A programmer's toolbox has also been developed to provide customized applications embedding GIS functionality. The toolbox is available in the form of a collection of ActiveX controls that can display maps with multiple layers, pan/zoom, select features for query, select features by user define shape, classify features into categories and update attribute database.

GRAM++ Academic

A Customized version of GRAM++ built for Academia. This version features Visualization and Image Processing Modules used for GIS representation at Educational Universities. The module is specialized for Geo-Spatial Mapping and Processing used in Geography, Geology, Civil, Computer Science, Transportation, Architecture and Project Management.

ANDROID

GRAM App

The **"GRAM App"** is an Android based application, which enables users to prepare and download customised maps and work with the application in offline as well as online mode.

Prof. Mrs. Parvatham Venkatachalam

Prof. Parvatham Venkatachalam (PhD, IIT Bombay) is a former Professor and Head of the Centre of Studies in Resource Engineering (CSRE), IIT Bombay. Prof. Venkatachalam has conducted research and published internationally recognized articles and technical books in the field of Mathematics, Spatial Data Accuracy, and Data Algorithms. Her specific interests are in the areas of Software Algorithms and Spatial Data Structures. She is the recipient of several distinguished awards and recognition in Mathematics and Geomatics.

Prof. P. Venkatachalam, through her vision and guidance, was instrumental in the incubation of Bhugol GIS Pvt. Ltd. at the Society for Innovation and Entrepreneurship (SINE) at IIT Bombay. Dr. P Venkatachalam continues to serve as a Mentor and Advisor to the leadership team of Bhugol GIS Pvt. Ltd.

Prof. B. Krishna Mohan

Prof. Buddhiraju Krishna Mohan (PhD, IIT Bombay) is a professor at Centre of Studies in Resources Engineering. Prof. B. Krishna Mohan has served as Head of CSRE and Institute Chair Professor at IIT Bombay. Prof. Mohan has to his credit numerous research projects in the areas of Remote Sensing, Image Processing and Artificial Intelligence.

With over three decades of in-depth experience and know-how gathered in multiple complex analytical projects in Image Processing, Prof. B. Krishna Mohan has brought to the Bhugol Team unique insights and rich experience of developing versatile GIS analytical tools. His specific interests are in the area of Machine Learning and Geospatial Image Processing. Prof. Krishna Mohan continues to serve as a Mentor and Advisor to the leadership team of Bhugol GIS Pvt. Ltd.

Prof. S. Venkatachalam

Prof. S. Venkatachalam (PhD, IIT Bombay) served as the Dean of Academics at IIT Bombay. He has authored books on a variety of inter-disciplinary subjects and has numerous scientific publications to his name. His work on Cognitive Sciences and Data Technologies are well regarded in the Academic and Research Community.

He has been a key driver and a founding member, responsible for the unique differentiating aspect of Bhugol's Enterprise Solutions. Prof. Venkatachalam continues to serve as a Mentor and Advisor to the leadership team of Bhugol GIS Pvt. Ltd.

Analytics

Town and Urban Planning

Delivering key determinants in Urban Planning scenarios using Geodatabase and Visual Analytics to form 3D swipe view for planning and development

Social Rehabilitation

Analysing factors and determinants for Rehabilitation and visualizing alternative and innovative methods to examine social impacts.

Transport Planning

Our Transport Planning Solution delivers awareness on safety and maintenance in demand forecasting and highway management for Governmental organizations and research institutions.

IT Agriculture

Our Solution predicts the projected current and future fluctuations in conditions like precipitation, temperature, and crop output by mapping geographic and geologic features of current and potential farmland towards the development of sustainable agriculture.

Smart Cities and IOT

Through visualisation in GIS for Smart Urban Development such as utilities, transportation, public works, and citizen engagement. Bhugol GIS Pvt. Ltd. delivers an integrated solution in the planning of smart infrastructure integration & utilization.

Land Use Mapping

Our Solution delivers a tool for the integration and analysis of geographically referenced data, to identify, locate and map various types of lands associated with different landform units.

Hydrology

Our Hydrological Solutions analyse the contouring of groundwater levels and terrain modelling for water shed analyses to develop a sustainable structure for a groundwater model and stream network within a surface water model.

Utilities

Utilizing Spatial Analysis to map water mains, data lines, power lines, and gas mains to efficiently design, route, and distribute utility for management and monitoring.

Special Economic Zones

Our Solution helps identify the existing land use, road network maps and soil map, to effectively predict situations for development of Special Economic Zones.

Climate

Mapping and Analysis to effectively monitor Environmental changes to effectively plan future projected changes in climate by using GIS data.

Recreation and Real Estate

Visualizing census data and property information to map property parcel shape and determine the area and dimensions for planning of real estate and recreational facilities.

Safety and Security

Our Solution provides key determinants in characterizing infrastructure risk areas, disaster zones, planning and implementation of hazard reduction measures to assist planners in mitigation measures and emergency preparedness.

Health and Human Science

Our Customised solutions bring in insight to help Health Service providers, NGOs, Multilateral organisation and businesses effectively deploy the resource based on Spatial Analytics GIS data.

Rural Development

Providing Insights into land and resource use mapping by integrating spatial knowledge for community-based resource management, area planning, and environmental management.

www.bhugolgis.com

Bhugol GIS Pvt. Ltd.
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