Bionatics
www.bionatics.com

PRESS INFORMATION
Communication

A software company specialized in 3D simulation of urban and rural territories

➢ Bionatics is specialized in development of software solutions allowing quick creation and Real-Time visualization of big areas, whether they are urban or rural, and their evolution in the time

➢ Bionatics is the result of important investments in research and development, boosted by two complementary technology transfers.

➢ These investments have allowed Bionatics to propose innovative and performing 3D simulation products that are evolving the use of 3D in their markets.

➢ Its products are targeting mainly territory planning and military training markets.

➢ Based on the AMAP technology, Bionatics also develops and sales 3D plant modeling software through a complete product line-up targeting the architecture, entertainment and real-time markets.

➢ The Bionatics products offer innovative solutions to the professionals involved in territory planning, defense as well as 3D artists and engineers of the animation and the game industry.

➢ Bionatics is selling its products in more than 70 countries, and continues to invent with the objective to offer its customers an advanced view in 3D simulation.

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▪ BIONATICS CORPORATE PROFILE

Bionatics is specialized in development of software solutions allowing quick creation and Real-Time visualization of big areas, whether they are urban or rural, and their evolution in the time.

Since 10 years, **Bionatics** have been investing in the best engineers and the best technologies with the objective to help our customers to produce better, faster and to win. Bionatics products do allow them to stay ahead of competition that is very shifting in their activities.

Bionatics products, LandSIM3D and Blueberry3D, are aimed for territory management- (sustainable urban planning, protection of landscapes...) and defence simulation markets (Real-time 3D visulatisation with high detail). Thanks to its very innovative and performing specifications, these two solutions, based on the same software core, are evolving the way 3D is used in their markets.

LandSIM3D makes 3D modelling and visualisation accessible for beginners, but offers also all professional landscape planners, a high end tool for design and decision taking in their urban and landscape projects. They can today, without support from specialists, use their geographical 2D raw data to automatically create a 3D model of their project inserted in the environment. They do also have to their assistance tools to visualize altered phases of the project and evaluate different scenarios simulating the evolution of their project in the future, even the growth of the vegetation. The 3D model becomes the support for all design, discussions and presentations along the evolution of the project.

The **Blueberry3D** technology is pushing the limits in Real-Time visualization for the defence markets, providing a tool for procedural generation of 3D databases directly from geographical raw data (orthographic images, elevation- and vector- data). Blueberry3D uses the raw data together with automatic procedural parameters, defined by the user, to calculates, in Real-Time, the polygons needed to display the scene. Thanks to this approach Blueberry3D bypasses usual limits of number of polygons in databases and makes it possible to handle databases with no limit on size with very rich details. Also this procedural approach reduces the time and costs for production of databases. This technology in combination with classical static models, enhances the performances and capacity of visual systems and fits smoothly into existing production and visualisation workflows.

These two products are the result of important R&D investments since the start of **Bionatics** in 2000 and its two technology transfers;

- **2000**: Agreement for an explosive license and the transfer of the AMAP technology that allows the 3D modelling and growth simulation of virtual vegetation following botanical rules.

- **2004**: Acquisition of the prototype technology Blueberry3D originally developed by a Swedish based on first promising results of procedural 3D modelling. Blueberry3D is the 3D technology used as a base in Bionatics products.

Based on the **AMAP** technology, Bionatics is since 2001 commercialising a range of 3D plant modellers aimed for architecture- games- and 3D Real-time simulation- markets.

Bionatics is selling its products in more than 70 countries, and continues to invent with the objective to offer its customers an advanced view in 3D simulation.

- ## BIONATICS TECHNOLOGY ASSETS

Bionatics has in its portfolio 2 software technologies specially innovative and performing that are the core of it strategic skills;

The **Blueberry3D®** technology; traditional 3D visualisation is done by displaying textured polygons, built in advance, to visualize a object or a scene. During Real-Time visualisation (30 to 60 images per second) the displays performances are depending on the capacity of the graphic board to handle polygons and the capacity of the memory to store polygons needed for the scene.


Blueberry3D is evolving this approach and just considering the actual 3D scene building the polygons needed to display it in Real-Time. With this procedural approach there is no need to store all pre-calculated polygons and just focus on the polygons needed in the field of view. Evolved since 1998 it is a fully operational solution and allows very realistic 3D visualisation and an optimization of the workflow to create 3D Real-time databases

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This technology is developed and industrialized to be a fully operational solution on the defence market and to be the core 3D technology of Bionatics products.

Awards received: Innovation Award 2005 ; Up & Coming Award 2008 ; selected by the magazine Military Training & Technology.

The **AMAP technology**: acquired with and exclusive license from CIRAD, it allows 3D modelling of all types of vegetation by simulating their botanical rules for growth from statistic analyses of morphemic evolutions of each species.

Growth and season change of the "Silver Willow" simulated with Bionatics' technology.
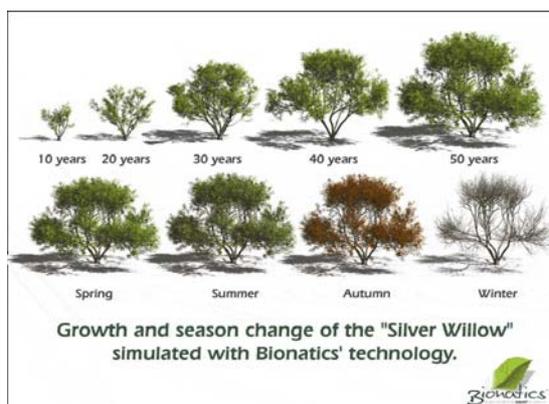
This technology was developed managed by Professor Philippe de Reffye at CIRAD (Co-operation centre in Agronomic research for development), a international organisation with more than 1200 scientists who devoted more than 30 years in the research of botanic simulation, and that have a worldwide knowledge base on plant (more than 4000 speeches). Thank to the technology AMAP transferred, Bionatics has a worldwide unique experience in modelling and visualisation of ecological ecosystems in 3D and can simulate their evolution in 5, 10 or 20 years with extreme realism.

Since 2001, **Bionatics** are using this technology in its range of plant modellers and have rapidly become identified as an innovative actor in the 3D community. The partnership with CIRAD has contunued since 2000 and has resulted in next generation functional simulations of vegetation taking in to consideration exogenous environmental factors (positioning, light, climatic conditions, soil texture, poillution...)

Awards received: Computer Graphic Innovation Award 2001 selected by the magazine Computer Graphics World ; Who's who Computer Graphic Image 2002 ; Up & Coming Award 2004 ; Innovation Award 2004 selected by the magazine Military Training & Technology.

- ### **BIONATICS PRODUCT LINE**

Bionatics is marketing two ranges of products aimed to simplify modelling and visualisation of terrains.

1. Modelling and visualisation software of terrains split into to markets:

Blueberry3D® targeting the market of training simulators for the defence industry. Bluberry3D is a software allowing to reduce the time for creation and the visualisation of 3D databases of terrains used in defence training simulators (helicopters, tanks, drones...) or civil (rains, trucks, emergency vehicles...). Blueberry3D exists in several versions compatible with e.g. OpenSceneGraph and Presagis Vega Prime.

Blueberry3D is commercialized by a network of resellers in France and worldwide. Prices range from 15 000€ to 50 000€ without taxes depending on configuration.

LandSIM3D® targeting the market of professional landscape architects and landscape management. LandSIM3D allows fast creation of 3D terrain models, villages or landscapes from graphical raw data without having specific knowledge in 3D modelling or desktop modelling. Once created these models allows aerial analyses and insertion of projects in it real situation for end visulaisations, studies or communications. LandSIM3D: Share you vision of the terrain.

LandSIM3D is commercialized by Bionatics in France and by a network of resellers worldwide. Price 7 490€ without taxes

2. 3D Plant modellers with versions for 3 different markets

EASYnat® aiming the architectural market. Very easy to use, its sales is based on an innovative concept of virtual grains downloadable from Bionatics WWW. Thanks to a worldwide library more than 500 speeches of plants possible to simulate at any age and any season. EASYnat is available for Autodesk AutoCAD and 3ds Max.

EASYnat is sold on line on Bionatics WWW in France and to the rest of the world. Price : 30€ without taxes per plant.
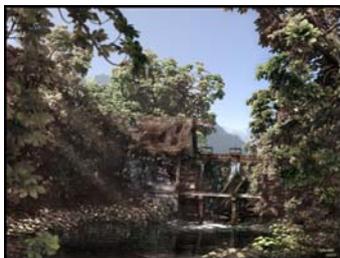
natFX® natFX is developed to answer to the needs of experts in 3D animation and Real-Time. It is the top of the edge of 3D plant modellers for the market of animations, games and post production thanks to a suite of high end functions answering to all artistic needs. The product shares the same library of plants as EASYnat. natFX is available for Autodesk 3ds Max and Maya.

natFX is sold on line on the Bionatics WWW in France and the rest of the world. It is also sold through a network of resellers. Price : 910€ without taxes (modeller without plants)

REALnat® developed for the Real-Time Defence training simulation industry. REALnat is a 3D plant modeller with different geo-specific plant libraries. Models can be exported in OpenFlight with automatically created Level Of Details representations. REALnat is available as a standalone version or as plug in for Presagis Creator.

REALnat is commercialized by a network of resellers in France and worldwide. Price : 7200€ without taxes.

▪ BIONATICS PARTNERS

During 10 years of important innovation for the 3D industry, Bionatics has developed strategic co-operations with some of the most important software developers in the industry as Autodesk, Presagis or Abvent. These partners are contributing and guaranteeing that our products keep their position as leaders and answering to most important demands.

INDUSTRY PARTNERS

Since 2003 Bionatics is an active partner of **AUTODESK**; world leader in CAD and 3D on the Architecture, Engineering and Design. Bionatics has integrated its product EASYnat with Autodesk AutoCAD, the most sold CAD software in the world, Bionatics has also integrated its top of the edge plant modeller with the 2 most famous 3D simulation solutions in the world: Autodesk 3ds Max and Autodesk Maya.

Since 2004, Bionatics is also partnering with **PRESAGIS**, world leader in COTS solutions for Defence simulation. Bionatics has integrated its product Blueberry3D with one of Presagis best sellers, Vega Prime.

2008, Bionatics became partner of ABVENT, developer of the software Art'lantis Render, developing in co-operation a selection of Bionatics plants on a CD specially optimized for Art'lantis.

TECHNOLOGICAL PARTNERS

IGN is since 1940 active in the mapping of the French territory. Taking the lead in the use of numerous innovative technologies, IGN is commercializing its expertise worldwide. Through a strategic co-operation, Bionatics has optimized its solution LandSIM3D by linking it to IGN referenced mapping. This link optimizes the preparation process of terrain data needed for the 3D visualisation of big landscapes.

 "The partnership between IGN and Bioantics allows all architects, engineers and landscape architect; to easily build and visualize 3D models of their territory in France by recovering precise information from the databases BDTOPO from IGN and importing them to our LandSIM3D product" Stéphane Gourgout VP Marketing and Sales, Bionatics.

CIRAD is the most advanced agronomic research center in the world regarding technologies for computerized simulation. Bioantics has signed a scientific partnership with CIRAD that resulted in the transfer of the AMAP technology and a long term technological co-operation.

"*The long term co-operation with CIRAD is essential because it allows us to keep a permanent link with the most advanced scientific research worldwide and also anticipate the future software solutions for the simulation industry*" Michel Murail President of board of Directors, Bionatics.

THE TEAM

Bionatics consists of a team of 15 persons and are for the moment actively looking to reinforce its force of developers, marketing and sales.

The executive team

- Michel **MURAIL**, President CEO, CTO.

Co-founder, heads definition and technical orientation to be in line with company market strategy, he also manages the development team and co-ordinates technical projects. He is also responsible for the quality and packaging of the products.
A former Business Development Manager at THALES Synthetic Environment division, Michel has a solid background and experience in the development of complex software solutions in limited time.

Received a MSc degree in Computer Science at the Bordeaux University.

- Stéphane **GOURGOUT**, Vice-President, Sales & Marketing Director.

Co-founder, responsible for commercial activity and marketing strategy in France and worldwide, he assures the management of the sales and marketing teams and also the co-ordination with the technical team. Bilingual and educated internationally, he has a strong experience in sales strategy of products with high technical content. He did in 1995 create the company JMG Graphics that served as a base for the creation of Bionatics. Stéphane GOURGOUT has a degree from the Institut Superieur de Gestion de Paris (France), he International Management University of New York (USA) and the International Management University of Asia (Tokyo, Japan).

The technical team

- Hélène de **FONTENILLES**, Software Development Manager

Manages the architecture of software products while respecting the technical strategies. She supervises the methods and the tools used to guarantee product quality.

With a Master's degree and highly trained as an engineer, Helen was previously Chief Scientist at THALES TRAINING & SIMULATION where she acquired the technical experience in software engineering, simulation and advanced computer science.

- Pierre **DINOUARD**, Manager Research and Development

Heads the direct scientific orientations of projects between Bionatics and the CIRAD (Centre of International Cooperation of Agronomic Research for Development). He also supervises R&D work. A former CIRAD researcher, Pierre has an extensive background in the techniques used for the modelling AMAP plants and has developed in collaboration with Dr. Phillippe de Reffye, the principal AMAP prototype range on the Unix, Windows and Macintosh systems. He headed for five years, 4 persons in the CIRAD R&D team developing AMAP prototypes.

Pierre DINOUARD has an engineering degree from L'ENSICA in Toulouse

IDENTITY SUMMARY

- Name : **BIONATICS**

- Activity: Bionatics develops software solutions for 3D modelling for urban and rural terrains and the simulation of their evolution during the time.

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- Website : www.bionatics.com

- References

Cities and communities : Office Nationale des Forêts, Ville du Havre, Communauté d'agglomération de St Quentin en Yvelines, Communauté d'agglomération du Beauvaisis, Communauté Urbaine du Grand Lyon, Communauté de Communes de Caux vallée de Seine, Conseil Général des Alpes Maritimes, Ministère de l'Environnement de l'Etat de Victoria (Australie), Diren Bretagne, Diren Normandie, Centre d'Etude Technique de l'Equipement Méditerranée et Nord Picardie, Ville de Montréal, Ville de Cannes, Ville de Perpignan, SEM Gers …etc.

Multidisciplinary, Architects, Urbanists, Landscape Architects : Ateliers Jean Nouvel, Renzo Piano Building Partnerships, Scott Wilson Ltd., Agence Alain Faragou, RTKL, ARUP, Norman Foster & Partners, Atelier de Portzamparc, RMJM, Agence Epure, Vinci Construction, ENCEM, GEODIS, Agence Interscene, Agence TUP, Géo-vision Avenir, K&K etc…, Groupe VICAT, Vu D'ici, Virtuel City, Agence Haouch, IATE, AS Média, Géoscop … etc.

Industries et Ministry of Defense : CAE (QC), EADS Defence & Security Systems, Airbus, Thales Services, Boeing, Lockheed Martin, BAE Systems, US Socom, Avia Ltd., Westand Helicopter Ltd., Rheinmetall, US Secret Service, Ministère Français de La Défense (DGA-ETAS), British Aerospace Systems, Kongsberg Defence & Aerospace, Ministère de la Défense Suédois, Ministère de la Défense de Singapour … etc.

Entertainment : Disney Feature animation, ILM, Lucas Arts Entertainment Company, Lucas Film Animation, Weta Digitals, Electronic Arts, Ubi Soft Entertainement, Atari, Sega Corporation, Microsoft, BBC MediaArc, Pivotal Games, Rockstar, Frantic Films, The Moving Picture Company, Digital Domain, Sony Picture Imageworks, Mikros Image, The Mill Facility, Slave Studio, l'autre image, Framestore CFC, Blue Sky Studios, Double Negative … etc.