

Job Title:	Postdoctoral Position on GeoVisual Analytics towards a tenure track leading to a position as research unit head
Job Reference Code:	GEO-PD
Date Posted:	09/06/2009
Application Deadline:	20 July 2009
Contact	jobs@graphitech.it
Employer's Web Site:	www.graphitech.it

Research Goals

On 2007 a major milestone was set at the EU level in the GI domain by the entering in force of the INSPIRE (INfrastructure for SPatial InfoRmation in Europe) directive (2007/2/EC). The latter is having profound effects, in technological, operational and political terms as it defines a legal as well as technical framework with the precise intent to provide harmonized access to data of environmental interest across Europe. From the technical standpoint INSPIRE is leading to the definition of a European Spatial Data Infrastructure (ESDI) based on a multi-level federated approach based on a Service Oriented Architecture (SOA). Through the ESDI, institutions at different levels, from all member states, will expose standardised data of interest for the EU through harmonized geographical web services.

Within this scenario the domain of GeoVisual Analytics (GVA) can provide effective solutions to ensure better environmental control and to prevent environmental crisis. This research work will tackle a number of challenges that GVA needs to face in context such as environmental control, planning and environmental protection, exploiting current technological, infrastructural development and considering economical and legal implications at the international level. For this the research work will specifically work on development of new GVA techniques and tools to reduce complexity present within the vast heterogeneous information flow and to help operators formulate theories and conclusions in an interactive manner.

Job description and responsibilities

The successful candidates must be enthusiastic about:

- conducting research at the highest international level,
- developing and conducting excellent graduate and under-graduate teaching,
- actively taking part in developing the Research Centre and its relations with external partners.

The candidate will be actively involved in every aspect of this research activities, from the preliminary investigations, systems research, systems development & study, to its dissemination, i.e. will be actively engaged in writing of scientific and technical papers. The candidate will establish strong team work with the other senior staff at Graphitech. The candidate will be also responsible to prepare and submit, with support from other staff members, of research proposals to national and international funding programmes. Research funds gathered within the three year timeframe will be used to start a research

unit of which the candidate shall become head. The successful candidate is expected to coordinate the work of a number of junior scientists (PhD students and IT developers).

The candidate will work within a motivated and highly competent international context, in close contact with leading EU Universities, Research Centers and Industries. Frequent travel within Europe is expected.

Minimum Requirements:

- Master degree in Computer Science or Mathematics , Physics or Engineering .
- PhD degree in one of the following topics: GIS Science, geocomputation, geoinformatics, spatial statistics, or similar with an emphasis on a topic related to visual analytics, Information Visualization, Geovisual Analytics, Geovisualisation, Visual Data Mining, Visual Knowledge Discovery or similar.
- Proved expertise in EU or international R&D projects.
- Fluent English spoken and written (and willingness to learn Italian) is mandatory: the candidate must be fluent in English and must be able to write technical documents (system requirements, use case document etc. in English) as well as scientific publications.
- Teamwork and interpersonal skills represent an essential preconditions as the candidate will be working in close contact with an international working group.
- Strong publication record (minimum five scientific publications in top peer-reviewed conferences and journals in the domain of reference).

The candidate has significant experience in one or more of the following topics:

- Geographic Information Systems with sound background in GIS-related basic principles. Knowledge of all phases of computer map preparation including digitization, data transmission, data reformatting, and map production.
- Scientific Visualization and Visual Analytics, Human-Computer Interaction, GeoComputation, Spatial statistics, Data mining, Data Filtering, Machine learning, Intelligent complexity reduction.
- Interoperability issues in the GIS domain.

IT requirements

- Good experience with databases (incl. Oracle, PostGres).
- Solid knowledge of the Object-Oriented paradigm and Java programming language.
- Experience in the development of servlets as well as JEE services (e.g. EJB).
- Sound knowledge in the field of web-services and SOA (Service Oriented Architectures) in the context of Spatial Data Infrastructures.
- Software engineering background (specific experience in designing of web-GIS services is a plus) and knowledge of UML.
- Familiarity with OGC protocol such as WMS, WFS, GML.
- Previous experience in the development or deployment of web-GIS services (client and server).
- Knowledge and experience in Metadata creation.
- Experience with GIS software (ESRI, InterGraph or Open Source etc.).

- Experience with GeoDB (Oracle Spatial, PostGIS).
- Experience in the definition of software requirements and technical specification for web-GIS infrastructures.
- Knowledge of semantic model of metadata (e.g. thesauri such as GEMET - General European Multilingual Environmental Thesaurus).
- Previous experience with GeoTools API, JBoss, Oracle Spatial.

Expectations

- Develop and carry out a research project under the control of Graphitech's management.
- Present the proposed research to at least three top peer-reviewed conferences and/or journals in the domain of reference per year, with the exception of the first year for which only one top peer-reviewed publication is expected.
- Prepare a research grant applications to national and international funding programs or equivalent organization.
- Design and teach one undergraduate course during the three-year fellowship on a topic proposed and developed in collaboration with Graphitech's management.
- Participate actively in the bi-monthly Graphitech Seminar
- Conform to worldwide standards of responsible conduct in research and comply with all applicable policies and procedures.
- Participate in open and timely discussion with staff at Graphitech regarding all facets of the fellow's research and educational activities.

Application process:

The items below should be submitted as Word or PDF attachments in an email message to be sent to jobs@graphitech.it. Include the words "Postdoctoral Fellowship Application - GEO-PD" in the subject line. Application materials will be reviewed by a selection committee.

The application will follow a two step process:

1. The candidates must send to: jobs@graphitech.it
 - a. Letter of application describing the applicant's research interest (500 words maximum).
 - b. Proposal of the applicant's research plan for the duration of the three-year fellowship (two A4 pages). This section should also include a 1-2 paragraph description of a course the fellow would propose to teach.
 - c. Official transcript of academic or research experience.
 - d. Recent writing sample (30 pages maximum).
 - e. Two letters of recommendation that speak to the applicant's ability to thrive in an interdisciplinary setting, to develop and carry out a research project, and to contribute to research. These letters should be sent directly from the recommenders to raffaele.de.amicis@graphitech.it
 - f. Current CV.

2. Selected participants will be invited to prepare a full research proposal by **16 of August 2009** to be submitted by the candidate to Fondazione Graphitech. Besides describing technical aspects the project proposal shall include training, mobility and career development activities on an international level as fundamental part of the activities of the project.

In case of successful evaluation of the proposal Graphitech will provide all the necessary infrastructural and administrative support to ensure that the researcher can carry out the project effectively. Salary commensurate with prior experience. Approximately, salary offer will be between EUR 32.000 and EUR 40.000 per year based on experience, scientific background, and qualification, essentially commensurated with prior experience.

Important: due to Italian Privacy Protection Law n.196/03 any resume not mentioning explicitly the following sentence: "*I authorize the use of my personal data in accordance with Italian Privacy Protection Law (30/06/2003, n.196/03)*" will be automatically deleted from our database and consequently not taken into consideration.