

**CENTRE FOR SPATIAL ANALYTICS AND ADVANCED GIS (C-SAG)**  
**National Institute of Advanced Studies (NIAS)**  
**Bengaluru – 560012**

Ref: C-SAG: Advt-1: 2017- 18

October 25, 2017

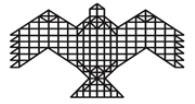
**CALL FOR APPLICATIONS**

**A] “FUTURES” OF SPATIAL**

- In this era of global technological advancement, data and information play a significant role in bringing wisdom, intelligence and logical decision-making in society. In recent years, the “spatial character” of data and information is becoming pronounced and assuming great significance because it is easy to associate “data and information” with a geographical or location tag and then process them with specialized analytics to generate smart spatial products and derivatives.
- Spatial Analytics (SA) is the logical processing of such spatial data and information entities using their topological, geometric, or geographic properties and is emerging at the forefront of advanced Geographical Information Systems (GIS) knowledge. SA is also spurred by the increasing ability to capture and handle geographic data in increasingly data-rich environments. Combined with Internet-of-Things and using Artificial Intelligence principles, SA is charting the future of geographical data processing in the Big-Data domain. Using advanced computational analysis, SA help determine intrinsic geographic patterns – patterns of commonality, optimality, suitability, predictability etc and adopts advanced modeling and heuristics of self-learning principles for processing spatial datasets. SA will help Key definitions of “where” get defined in SA; metrics of distances/area/shape/proximity/nearness etc; relationships between spatial data of similarity; siting and locating analysis; spatial econometrics; aviation analytics; Spatial Decision Support Systems (SDSS) and simulations using interpolation methods. All of the characters of SA are oriented to “find patterns” for predicting a FUTURE in the spatial domain.
- SA brings out newer meaning and understanding of spatial data and information – almost unravelling “hidden meanings” in data.....

**B] CENTRE FOR SPATIAL ANALYTICS AND ADVANCED GIS (C-SAG)**

- NIAS Council of Management, with support from Tata Trusts, has taken up new initiative of Centre for Spatial Analytics and Advanced GIS (C-SAG; [www.csag.res.in](http://www.csag.res.in)) to address this new and emerging domain of Spatial Analytics and advanced GIS. C-SAG has the main goal to develop an Intellectual Property (IP)-based advanced SA capability and generate high-end capability in advanced GIS – here are some things
- Some of the best experts of the world in the area of Spatial Science and Data Analytics are mentoring and providing their best advise for C-SAG. C-SAG has a vibrant team led by a highly experienced professional in this field.
- C-SAG activities include does:
  - High-end, advanced “knowledge development” in geographical science – creating IP in SA and advanced GIS technology and application areas. C-SAG is focusing on Agri-GIS suite of IP and in area that cover health, education, city management and many other areas.



- Developing and maintaining a “futures” knowledge-base in SA within the country.
- Education Networking and Advanced Training in SA and advanced GIS – for government, private industry and for faculty training for universities.
- Consulting to government, industries - assessments/evaluation and independent documents/reports related to SA and advanced GIS technology.
- Associate and build partnerships at international level with high-capability SA and GIS institutions

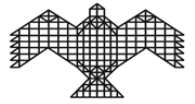
## C] CHALLENGING POSITIONS IN C-SAG

- C-SAG is looking for high-performing and role-oriented experts in GIS, Data Analytics, Remote Sensing and Software Development.....
  - Are you interested in being at the cutting edge of SA and GIS Applications development - applying principles of Data Analytics, Artificial Intelligence, Deep Learning to geospatial data.....here is a career for you!!
  - Are you ready for taking the challenge of working in a high-end cutting-edge technology and GIS application area.....here is an opportunity for you!!
  - Are you eager to work with some of the best professionals in this emerging area of SA and advanced GIS and contribute to top-knowledge development.....don't miss this opportunity!!
  - If you look for the best environment of work and culture – transparent and merit-oriented where you can interact, give your ideations and be a part of a constantly engaged and linked-in team.....you may be just suited for C-SAG!!!
- Want to be in the first (and only) group in India to start work on “**FUTURES**” OF SPATIAL??
- C-SAG is looking for following expertise:
  - **Associate (1)** – a senior geospatial expert with Masters or PhD in RS and GIS; Geomatics; Computer Science or an appropriate field; minimum of 15+ years of experience in working on GIS Technology and Applications or in GIS software/applications development.

**Essential Skills:** Wide experience in developing GIS databases and GIS Applications OR in technical software development; High-level knowledge of geospatial domain – image processing, Positioning, Surveying; Recorded experience of leading project teams in GIS Applications development to success; Demonstrable knowledge of advanced GIS concepts and fundamentals of Big Data and Data Analytics; High communication skills in written/oral; High positive energetics personality with high-ability to network and engage at various levels; a go-getter; ability to just work-ahead for success in C-SAG.

**Preferred Skills:** Good research background with papers published in GIS and Remote Sensing and/or Leadership in key GIS projects and/or innovative GIS projects will be an added advantage.

**Work Responsibility:** Be responsible for developing key Spatial Analytics concepts, models, work-flows, applications, projects in various key areas of C-SAG work profile. As an independent and passionate thinker, provide ideations in SA and advanced concepts of GIS and take lead role to experiment and develop IP Suite in key areas. Be responsible to build a team of experts and manage the work allocation and outcomes. Next in person to Chief Executive!!



- **Software Development Experts (3)** – a mid-level software development professional having Bachelors/Masters in Computer Science or Information Science AND minimum of 4-6 years (Bachelors with min of 6 years; Masters with minimum 4 years) in applications/software development in various platforms.

**Essential Skills:** Proven experience in development of software for Applications/Database/Web-portal/Data Analytics; good knowledge in Python/C-Sharp/Java/HTML etc on web and mobile platforms; good understanding of AIML/TensorFlow/GitHub/MatLab/SPSS/R and related emerging fields; ability to adapt to COTS and open-source environments; positive energetic personality and astute team-person; ready to burn “all-day-oil” and give wings to SA imagination; eager and willing to learn and adapt to SA and GIS domain; urge to achieve excellence and emerge supra in SA and advanced GIS.

**Preferred Skills:** Applications software development in GIS domain and/or usage of Data Analytics Tools; Knowledge of GIS analysis and modelling etc will be an added advantage.

**Work Responsibility:** Ideate, design and develop practical algorithms and software and IP suite for different C-SAG activities; use Quantitative Methods for spatial data analysis; implement Spatial Data Warehousing and Advanced Spatial Data Mining concept; work on Business Intelligence (BI), Data Structures for SA; work and develop various types of data analyses – Regression, Visualization, stochastic models, integrative models, statistical computing, parametric analyses etc; study and apply Data Science Methods for spatial analytics; implement C-SAG projects. Must develop high-quality software in mobile and web platforms and manage software development cycles/processes.

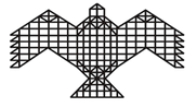
- **Project Manager (1)** – a qualified Engineer with a MBA degree; minimum of 12+ years of large soft-project or software organizational management experience.

**Essential Skills:** High-level of project management experience – mainly in project execution, coordinating with team, clients and other entities. Excellent in scheduling, monitoring and project control activities. Project Management skills in technical activities, HR allocation, financial management of projects will be necessary.

**Preferred Skills:** Project Management experience in GIS projects; PM certification etc will be an advantage.

**Work Responsibility:** Manage project activities with efficient planning and scheduling, in coordination with C-SAG team, project clients and other experts; resource allocation and utilization analysis of projects; HR planning and analytics and efficiency determination; Resonate with project and prepare Visual Stories that communicate and transform audiences and work on art and science of effective communications; excel at administering and coordinating groups of individuals by promoting teamwork, delegation planning of tasks, resolving conflicts, setting goals, and evaluating performance etc.; managing project uncertainties and overall coordination of all project tasks of C-SAG.

- **Junior Spatial Analysts (2)** – a Graduate Engineer of Computer Science or Information Science or related field or Masters in Computer Applications; minimum of 2 years' experience in GIS applications in GIS environment OR software development in Java/C-Sharp/Python/HTML or other relevant languages.



**Essential Skills:** Demonstrable knowledge in programming and algorithms is a must; positive learner and excelling team-work; diligent and hard-working; ability to contribute nothing but best; must quickly and easily adapt to SA and GIS domain software development.

**Preferred Skills:** Data Analytics experience and/or intense GIS applications software development will be an added advantage.

**Work Responsibility:** Intensely support development of algorithms and software for IP suite for different C-SAG activities; adopt Quantitative Methods for spatial data analysis; work on various types of data analyses – Regression, Visualization, stochastic models, integrative models, statistical computing, parametric analyses etc; implement C-SAG projects. Must support development of high-quality software in mobile and web platforms and manage software development cycles/processes.

- **Spatial Data Expert (1)** – a Bachelor/Masters in Geomatics/GIS/Remote Sensing or related field; 6-8 years' experience in creating, organizing and managing GIS and spatial databases.

**Essential Skills:** Must have experience in image analysis, survey data handling, GIS data organisation; ability to develop software tools for spatial data organisation/QA-QC tools; proven experience in GIS database organisation projects and ability to create “large” Spatial Data systems for SA; must have GIS database applications/customisation software development capability in GIS domain.

**Preferred Skills:** GIS Applications software development and/or Understanding of various Big Data concept and SA technologies will be an added advantage.

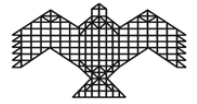
**Work Responsibility:** Ideate, design and develop innovative methods of creating, simulating, organizing, verifying, managing spatial data using principles of spatial database management, Big Data warehousing, Data Mining and automated integration of variety of data into spatial databases. Develop and utilise the tools of remote sensing image analysis, GIS and any other data processing techniques. Must take responsibility for all spatial data related activities of C-SAG.

- **GIS Data Assistants (1)** – Graduate (preferable in Science field) or Diploma in technology field; 6-8 years' experience in organizing GIS databases.

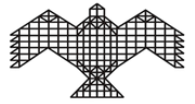
**Essential Skills:** Proven working and project experience in mapping from images, organizing spatial/non-spatial GIS databases, generating geo-tagged databases; developing GIS databases as per standards; verification and quality analysis of GIS data; ability to learn quickly, think and apply newer methods of spatial database and other database organisation.

**Preferred Skills:** Experience in GIS applications software customization/development for GIS databases organisation will be an added advantage.

**Work Responsibility:** Work and support on any problem or activity of GIS data organisation and develop methods to bring any data into spatial domain with reliability and scientific accuracy. Work on various types of images, maps, sourced databases, crowd-sourced data etc. Will have to work on COTS or open source GIS platforms and specialized SA tools.



- In all cases, very good communications skills – written, oral and presentation skills is mandatorily essential. Experience of making reports and technical documents are essential and critical. Ability to work on own and independently BUT also be responsible in a team is essential.
- Following are applicable Terms and conditions for the above positions:
  - The selection will be based on all-round smart-evaluation of “360° capability” – technical knowledge/expertise, experience and skills, communication skills, passion, personality etc.
  - All applications will be scrutinized for completeness and compliance to advertisement and skills – those not in conformity would be not considered for further processing.
  - Scrutinised and compliant applications would be subject to selection in a 2-step process:
    - A first-step of rigorous process of “screening” by extended/multiple technical calls/online meetings. Candidates must be prepared for such calls/online meetings.
    - For screened-in candidates there would be a second step – a face-to-face interview with tests/hackathons and high-level discussions.
  - The decision of C-SAG on selection will be final and will not subject to any discussions of any sort.
  - Candidates must demonstrate their “intent-to-join-the-team” and will have to make their own arrangements for participating in the selection process/interview and C-SAG will not cover any expenses for the same.
  - **Remuneration/Fee for the above posts will NOT BE constraint for the right and meritorious candidate and will be equal/surpassing government/industry levels** in respective sectors. The following will apply to determine the remuneration/fee::
    - considerations of candidate merit, existing emoluments, capabilities, attitude and personality, C-SAG will determine the offer of Consolidated Fee/Remuneration and communicate the same to candidate. No negotiations on this will be possible.
  - These are consulting positions for 3 years and would be offered on annual contract basis, renewable 2 times in a 3 years duration, subject to following conditions:
    - If in C-SAGs 6-monthly evaluations, performance is poor/un-satisfactory then C-SAG can/would terminate the contract even earlier and at any time within the 3 years term.
    - If in C-SAGs 6-monthly evaluations, high-grades of performance are achieved then new annual contract would be offered - with a maximum 10% hike in contract fee for 2<sup>nd</sup> and 3<sup>rd</sup> years, respectively.
    - For meritorious performing candidates, there is a possibility for these positions to continue even after 3 years, solely at the discretion of C-SAG.
  - Canvassing of any type will lead to immediate disqualification.
  - All consultants will formally report to Chief Executive of C-SAG – who will assign work/tasks from time to time and also ensure systematic performance review.
  - Selected candidates will adhere to and follow the rules and regulations of C-SAG and work diligently for the objectives of C-SAG.
  - Team-work will be a must and a culture of transparency, high-level performance and output and meritocracy is expected from each candidate in work.
  - C-SAG reserves the right, at will or on any work default by candidate, to terminate these contract consulting positions with one month's notice at any time.



- In case selected candidate wishes to terminate the contract then he/she will have to provide 1-months' notice before resigning midway.
- In these contracting positions, statutory and taxation laws of India would apply.

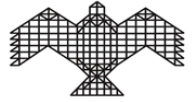
## **E] CALL FOR APPLICATIONS**

- Applications from interested and enthusiastic candidates is called for above positions.
- **Interested and qualifying candidates MUST submit applications, for specific positions, in following format containing following 10 items (please start each item on a fresh page for clarity; compliance to below format is a must - else applications would be rejected). A single pdf file may be composed of these 10 items (no multiple files please – else application would be rejected) and submitted:**
  - Position Applied for
  - Latest CV/Biodata with clear details of qualifications, experience, achievements and other professional accomplishments. List publications/specialized training and software developed that will help us understand your capabilities.
  - 1-page (strictly 1 A4-page) showing the match against Qualification, Essential Skills and Preferred Skills – as mentioned against position.
  - 1-page essay (Strictly 1-A4page) on your thoughts and ideas on **Spatial Analytics**
  - 1-page essay (Strictly 1-A4page) on your **definition/scoping/ideations for Agri-GIS OR Health-GIS or UAS Applications (any one of them).**
  - 1-page (Strictly 1-A4page) justification on why you consider you are best suited for the position applied for.
  - Enclose your copies of latest/last academic certificate from university with grades/marks.
  - Enclose copy of latest (not more than 1 or 2 months old) salary/remuneration pay-slip/certificate (as proof of last emoluments drawn)
  - Names of 2 references (for background and merit check) with address, telephone, mobile and email.
  - **Please attach the following signed certificate** in the application (without this certificate the application will be treated as invalid):

“This is to certify that I have applied for .....position in C-SAG against the Call for Applications dated October 25, 2017.

I also certify that:

- I have read the terms and conditions of the Call for Applications and agree to adhere with the process without any conditions.
- I recognize and understand that the decision of C-SAG on selection will be final. I affirm that I will accept the decision, be whatever, and will not subject to any discussions/questioning or challenging from my side.
- I affirm that the qualifications/experience and other details in my CV/Bio-data and other items of my Application are correct and authentic.



- I clearly understand this is a high-challenge and innovative work in an emerging area of technology and applications and that this position is a contract consulting position. I have clearly understood the contracting terms outlined in the Advertisement.
- I clearly understand that based on my merit, existing emoluments and performance in selection process, if selected, I will be intimated of the Consolidated Remuneration/Fee that is offered by C-SAG. I recognize that I have the choice of accepting or not accepting the same.
- I agree to participate in the selection process with my own resources and recognize that C-SAG would not bear any costs or be responsible, in any way, towards my participation.
- If selected, I will adhere to the C-SAG rules and regulations and will work passionately, diligently, excellently and efficiently for all tasks and works assigned to me.

(Signed)

Full Name:

Email:

Mobile:

**All Applications, in a single composited pdf format only, must be sent BY EMAIL ONLY before November 24, 2017 to:**

**Mr AN Prasad,  
Administrative/Finance Executive,  
Centre for Spatial Analytics and Advanced GIS (C-SAG)  
National Institute of Advanced Studies (NIAS)  
IISc Campus  
Bengaluru – 560012 INDIA  
BY EMAIL ONLY to [admin@csag.res.in](mailto:admin@csag.res.in)**