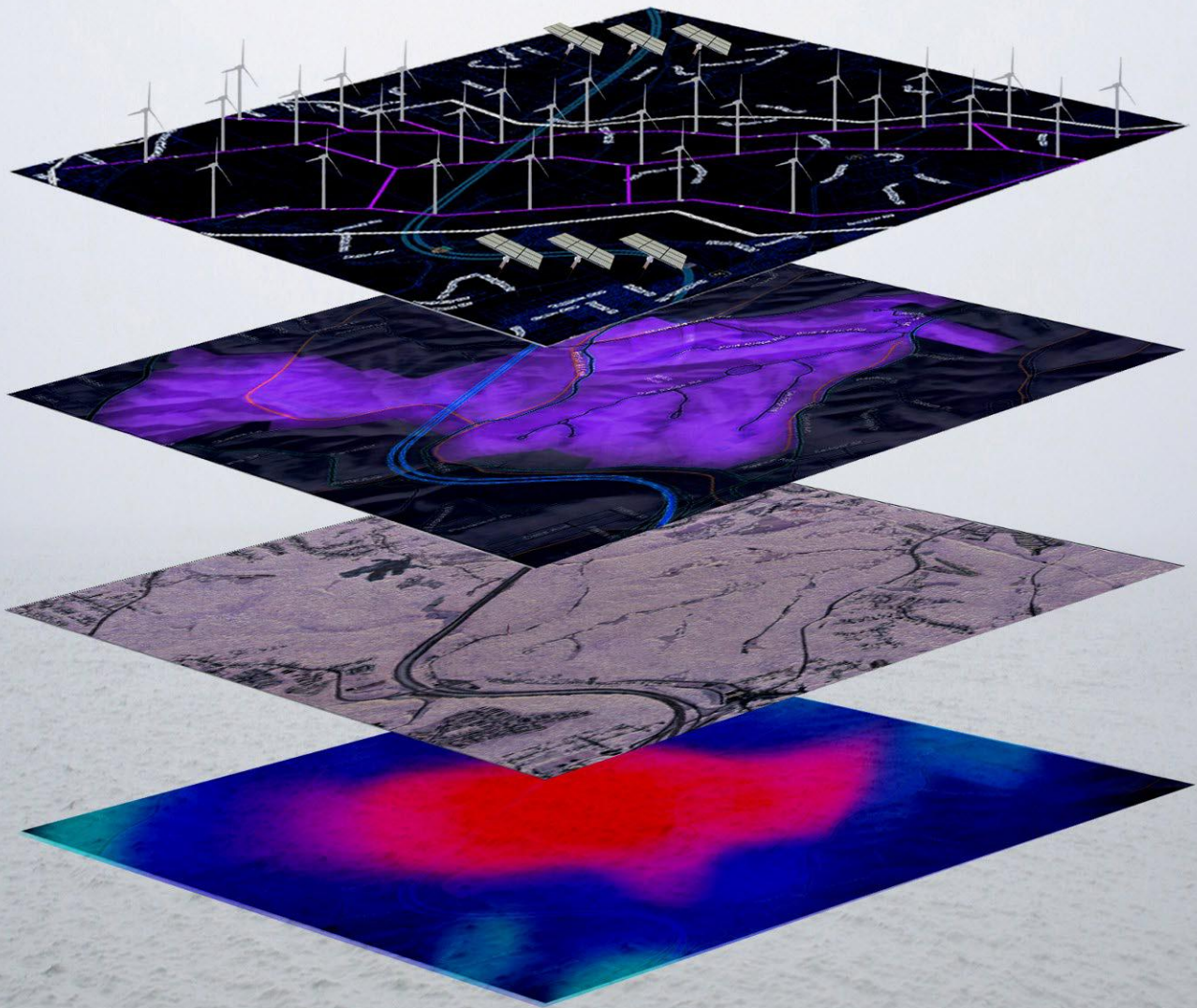


SOCIETY OF GEOINFORMATICS ENGINEERS
PRESENTS

SPATIA

SENIOR PLANET AREAS THROUGH INNOVATIVE APPLICATIONS



GEOHORIZON 2K17

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Message from the director's desk....

The Society of Geoinformatics Engineering is a student council inaugurated in the year 2004 exclusively for the students pursuing a career in geoinformatics engineering. The SGE is intent on improving the knowledge of the students in the domain of Remote Sensing and GIS and moulding the students into eminent professionals to render valuable service to the community of geoinformatics engineers.

One of the many objectives of the SGE is to improve the skills of the students that are deemed imperative in the realm of Geoinformatics. Thus, it conducts many activities and workshops that would benefit the students to a very great extent. It also conducts annual intra and inter college symposium, motivating students to step forward and present their ideas, views, and projects in the field of Geoinformatics.

In kind, the annual magazine "Spatia" publishes information regarding various career opportunities pertaining to the field of geoinformatics, intern experiences of the students, abroad study programs, and various articles enlightening the students about the recent advancements in this domain. I am certain that this magazine would upheave the inquisitiveness of every student, thus, ultimately resulting in new innovations and commendable contributions to the field of Geoinformatics.

I extend my unequivocal adulation to all the students working wholeheartedly for Spatia and wish them all, success.

PROGRAMMING IN

Why would these be useful?

Programming is used with many goals in mind, whether it is automating geoprocessing tasks or implementing an algorithm for all sorts of tasks, programming goes a long way in problem solving. It helps us tackle those tasks which require a different degree of operations, where the problems we are facing need some specific manipulation that is not provided.

This is one of the reasons why many GIS software allow access to API for customizing the application according to your specific needs.

Python



For QGIS, and especially, ArcGIS users are usually familiar about the modules for scripting in Python. With that being said, Python has become one of the most important languages used in the field. It is easy to learn, owing to its outstanding documentation and easy to pickup syntax and the variety of tutorials available online for free. Moreover, there is a great support for data analysis and processing through the likes of Numpy or Pandas.

Python is incorporated into ArcGIS, QGIS, GRASS GIS, gvSIG, and many other open source projects, that make the language worth knowing. At the same time, there are quite a few libraries Shapely, Fiona and Rasterio, Folium, and many others that appeared in the past couple of years.

Python can be compared to as the swiss army knife for GIS.

JavaScript

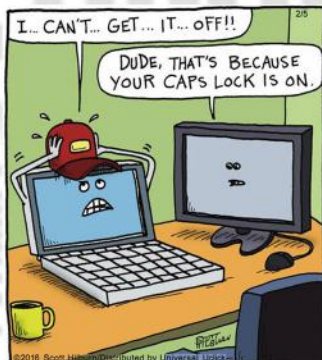


Other than python, JavaScript is also one of the core languages of the web.

Being present in pretty much every browser, website or web application, this makes it a reasonable choice for development of web mapping applications. The most popular applications in the past few years appeared are due to web mapping capabilities of this language.

Notable examples: ArcGIS Web APIs, MapBox, CARTO, Google Maps API, OpenLayers, Leaflet.

JavaScript has great tendency for applications to offer more 3D web-based capabilities like CesiumJS, OSM Buildings project, and MapBox GL supports 3D visualization.



PROGRAMMING FOR NON-PROGRAMMERS



GIS

SQL

It's one of the languages with a long history in GIS, that is being incorporated in many applications. It includes definition language(DDL) that modifies database schemas and data manipulation languages (DML) that manipulate database content.

Thus, SQL is essential in GIS for working with geospatial databases and can help to manipulate relational databases.

Notable examples: ArcGIS, PostGIS, CARTO, QGIS, MapInfo, and many other GIS software.

More heavy-weight languages

These are generally considered as the backbone of larger GIS software.

JAVA

Java is used for developing the backbone of the application, especially for desktop applications as an alternative to C/C++ or C#. Nonetheless, Java has proven itself as a particularly useful language even for map servers. As you might have known or not, one of the most popular web map server, GeoServer, is written in java.

It is a general purpose programming language that can help one go the long way in software development. Moreover, it is one of the most popular languages used today with strong and well-tested APIs, huge code base

Notable examples: GeoServer, GeoTools, ArcGIS Runtime SDK, gvSIG, OpenJump, uDig, WhiteBox (GAT), Java Topology Suite etc. Android apps are most of the time built with Java, C/C++

One of the most well-known languages among developers, and useful for desktop applications. Whether it is for Windows or Linux, C++ has a long line of successful applications it supported and still does.

Most software in '90s or early 2000, were built with C++

Notable examples: ArcGIS, QGIS, SAGA GIS, GRASS GIS, MapServer, ILWIS, Mapnik, GDAL, Orfeo Toolbox. Even today it still remains a popular language among developers, however it is not the sort of language you use on a general daily basis as a GIS user.

C#

C Together with .NET, it represents a well-known framework for software development. It is popular among proprietary software companies, especially for ESRI.

Notable examples: ArcGIS (ArcObjects), ArcGIS Runtime SDK .NET, NetTopologySuite, MapWindow.



MASTERS IN US

1. LIST OF UNIVERSITIES

If you have decided that you do want to spend more time learning about GIS, Remote Sensing or possibly even photogrammetry (who knows!), then it's best that you start looking into websites, google search for GIS/RS courses in US, Germany, UK, Italy, Netherlands, Canada and any place of interest. Now, the thing that I find most worrying and I did this myself is that before we do any homework on searching for universities, we ask seniors who already are in places we know of to ask them for guidance. Remember, we cannot choose an university for you, tell you that this university has good scope or whether it will give you good jobs. It is your job. Even if we do, Don't Trust Us. Your parents are going to pay you money to study. We are not. So, there is a tremendous risk at play here.

Another thing that I made a mistake in and most of you will too is that you haven't found what you want to specialize in. GIS or Remote Sensing? Right now, when you look for universities you'll tend to apply to universities that offer both. But, it is crucial to remember that when you are going to do this, most universities will look for what you have done in the past with relation to this: e.g., GIS/RS projects, some seminars, papers presented, etc. Have a clear idea about what you want to study and indulge yourself in. Remember again, you are going to be spending a lot of money to do this. So, you have all the time in the world to decide and not make a mistake!

I would strongly recommend to spend at least 3 months researching different courses in various universities around the world. When you are starting to apply, you need to have at least 40 universities. The reason for that is, applying to universities is itself costly. You'll start striking down many universities through a process of evaluation, which I will describe next. The more universities you have on your list, the better it will look that you have prepared.

2. TAKE YOUR GRE AND TOEFL

I would recommend taking your GRE and TOEFL after you have a list of universities with you. This part is very self explanatory. GRE and TOEFL are compulsory examinations that have to be taken and are part of the screening process for many universities. I cannot give you a threshold of how much is the eligible criteria as it varies from university to university, but a good score in both GRE and TOEFL will impress the university you are applying to and give a good impression on your overall communication skills. But remember that, that is not all.

3. START APPLYING!

During this stage, you must start filtering out your university list. Take into account your interactions with professors, students, The project/research, how well known the university is, how well the program is reached out, your financial commitments, etc. Start ticking out universities that you feel that fall into the category of criteria that you have in mind.

4. ESSAY/STATEMENT OF PURPOSE

Most universities look for an essay. You'll find on internet about this. But in the simplest of terms, it means what you want to communicate about yourself to the university: why do you want to be their student, what qualifications do you have?

Be clear and confident in this. Most of the students will look to take portions or paragraphs from already written essays. I just want to tell you this: When somebody wants to know about you, would you talk about yourself like somebody? You would want to differentiate yourself originally, stand yourself apart from the group of students who are applying, wouldn't you? That is precisely what you would want to do here. I would suggest and advise for everyone of you to make a list of your strengths and weakness. When you write about your strength, don't go overboard. When you talk about your weakness, well don't talk about it at all! At this stage, you are looking to impress the school with your track record and academics. So, I suggest that you focus on why they should take you in. Write a lot of drafts, make changes.

5 LETTERS OF RECOMMENDATION

Once you have started the application process, the website allows a space for three of our college professors to send their letters of recommendation to. The university wants three of our faculty to vouch for your interest and academic passion. So, when you are at this stage, make sure that you intimate and select three professors whom you have very good relations with in our department early. Most of our faculty are busy with their work with PhD students around November-January. So it is your responsibility to keep intimating them about your status and remind them to write a recommendation for you. This is probably the last stage in the application process. Once you submit the three letters electronically in form of a PDF to the application, you have

Your application process would ask you questions about your education, background and your interests. Filling them before hand will be ideal once you open a new application. Remember, each application to a university costs about \$25-\$50. So, unless you have no worry about money, try not to make any mistake while filling it up online. Check and re-check all your personal information and educational details.

6. WORK FROM HERE ON

There are some things that you will have to know after you apply. After having to resolved to study for two more years in US, you should know that you need to fill in a gap of difference between the system of education in India and in US. Though not to worry since most universities start their course from the basics, you will still find some parts troublesome to cope with. This is mostly because Geoinformatics in B.E has been taught to us from an engineering perspective. We learnt starting from Surveying to Geodesy to Remote Sensing and finally to GIS. So, if you choose a Masters in GIS, most of the course taught in Masters is from a Social, Political and Economic perspective. It is important for you to learn GIS and Remote Sensing basics when you are taught appropriately in B.E.

This will help you save time in re-learning about your strength, don't go overboard. things after you move to US.

Some repeated Q&A I get from juniors is "what are my job opportunities?". Job opportunities are different from B.E in India and MS in US. There are no on-campus placements in US. The students are given a career fair, but they will be talking to the HRs from different companies and present their resume. The job they will earn is through their own hard work and communication skills. It is not reflective of the university. Some companies call in students to do a phone-in interview where you will have to talk your way into getting a career for you. My reply to you will be when you ask me a question about this is, "Are you skilled and talented to be able to communicate your knowledge to the job seeker?". It is ultimately in your hands.



WHY NOT EUROPE FOR PURSUING MASTERS DEGREE

Would you like to study in Europe in English with minimal or free of cost? Don't like to bother your parents in asking money for your higher education abroad? Europe is the best place where you can study with financial aids. Europe has World-class higher education institutions and over 1,000 institutions offering high quality study programs in an international environment. There are fully funded Government scholarships such as , "Swiss Government Excellence Scholarship", "Swedish Scholarships for International Students", "Italian Government Bursaries for Foreign Student", "Invest Your Talent in Italy Scholarships" formerly known as ITALIA-INDIA project, "Erasmus Mundus Scholarship" which provides full financial aids including tuition fees, living, food and travel expenses for the students of developing countries. Apart from the Government scholarships most of the Universities in Europe offers free education for the students of developing countries based on the merits. Some of the European Universities in collaboration with Multinational companies provide free education and job during the course of study. There are lots and lots of Scholarships available to pursue higher studies in Europe. Some of them are listed in detail below.

The Swiss Government, through the Federal Commission for Scholarships for Foreign Students (FCS), awards various postgraduate scholarships to foreign scholars and researchers: University scholarships (Swiss universities, Federal Institutes of Technology as well as Universities of Applied Sciences) These scholarships provide graduates from all fields with the opportunity to pursue doctoral or postdoctoral research in Switzerland at one of the public funded university or recognized institution.

The Swedish Institute offers scholarships to highly-qualified international students from several countries who want to pursue full-time master's level studies. The scholarship covers tuition fee, living expenses.

The Italian Government sponsors a bursary programme for foreign students and IRE (Italian Residents Abroad) to study in Italy. The programme is offered by the Italian Ministry of Foreign Affairs, through its diplomatic mission in the accredited country of the applicants, to students of selected countries wishing to study at Italian public universities or other public institutions of higher education.

Invest your talent in Italy project (formerly known as ITALIA-INDIA project), promoted by Ministero degli Affari Esteri and financed by Camera di Commercio Industria Artigianato e Agricoltura di Torino and Istituto nazionale per il Commercio Estero (ICE), offers young talents from Brazil, India and Turkey the opportunity to develop their skills and specialize through a range of Master of Science and postgraduate Master programs in Engineering

Erasmus Mundus is a cooperation and mobility programme in the field of higher education that aims to enhance the quality of European higher education and to promote dialogue and understanding between people and cultures through cooperation with Third-Countries. India4EU II is an Erasmus Mundus Action 2 project funded by the European Commission and organized by a Partnership of some the most prestigious universities in Europe and India.







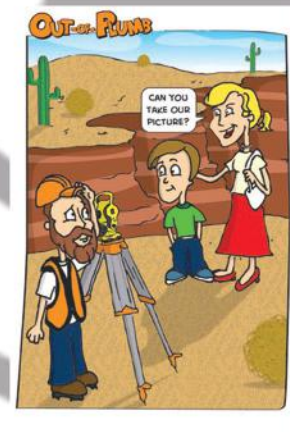
QUOTES :

“Where does GIS come in to all of this? I’ll put it another way. Where doesn’t GIS come in to the understanding of the ocean?

After all, marine ecosystems, just as those on the land, are geospatial, and therefore so are the solutions that we must craft as we go forward.”

How was your experience at IRS? Can you please mention some of your takeaways from the course?

IRS is the stepping stone to my planetary career. When I was learning I did not realise how much I am gonna use them in everyday research activities. Not many students get such exposure in Bachelor level in India. It’s the best place to advance your career in planetary remote sensing. Sometimes you may see the worth of it now due to various reasons, but you would definitely feel that ‘I should have learnt even better and deeper when I got the chance’ when you actually apply that knowledge in your everyday research activities.

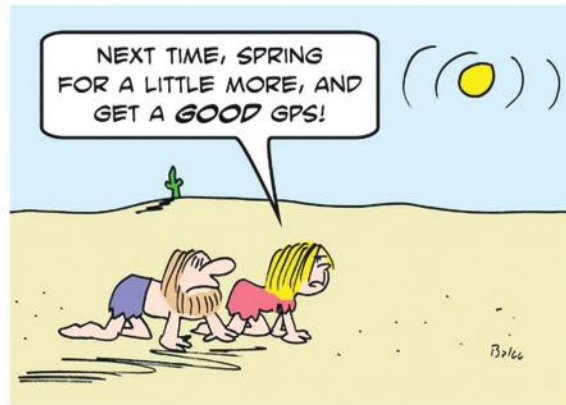


How related is the domain of astronomy and planetary science to the geoinformatics?

To study the composition and physical properties of very distant objects such as our Moon and star (or planets, asteroids, moons, comets, exoplanets, etc) the very base is remote sensing. In our curriculum we are mainly trained to understand the Earth’s vegetation, urban, water etc resources but the very basic concept of identifying the surface mineralogy, physical properties of other planetary systems do not change, say, bulk mineralogy within the pixel area (Diviner datasets of Moon), finding the ratios of mixture of mineral compositions within the pixel are (sub-pixel classification) within the reflectance and emissivity measurements from orbital spectrometer (for eg, discovery of endogenic water on Moon by Chandrayaan-1 Moon Mineralogy Mapper datasets), finding the roughness of the surface (crater ejecta using MiniSAR and MiniRF data of Moon), depth of subsurface ice (for eg, SHARAD datasets of Mars) using microwave remote sensing and so on.

Any particular subject/paper you would ask your juniors to focus more upon to enter the domain of astronomy and planetary science?

Every subject you learn in the course structure is very important. In terms of astronomy and planetary science, all these are equally important, say GIS, Digital Image Processing, Photogrammetry, and VIS-NIR-MIR-TIR Spectroscopy, Microwave remote sensing ! These are almost the entire course structure. Our curriculum is best suited to enter any research domain ! Use scihub.cc to download any journal articles. More you read, more you know about a planetary system, more you tend to explore.



When should a student ideally start preparing if she/he wishes to enter that domain? There is no ideal time to start. It's advisable to have a planetary related Bachelor thesis so that you can apply to any University offering Masters degree in Planetary and Space Science. Beware that no institution in India offers you the complete curriculum of planetary field however you can always choose planetary related Master's thesis in universities in India.

Any other message that you have for your beloved juniors? As India is planning for many more interplanetary missions to come in the future (Mars, Moon, Venus, even Comet flyby etc), it's one of the best times for majoring in this field. However, it is going to be a long shot, therefore, never lose the focus and confidence throughout your career journey !

"IRS is the stepping stone to my planetary career. . Not many students get such exposure in Bachelor level in India. It's the best place to advance your career in planetary remote sensing."

- NANDHITA , B.E GeoInformatics, 3rd year

—INTERN EXPERIENCES—

INTERN AT GERMANY

Every year, two to three students from the final year, get to go to Germany on a research internship for 2-3 months through the DAAD WISE Scholarship. I was one of the lucky ones to be selected last year. My internship was hosted by Prof. Dr. Natascha Oppelt, the head of the Remote Sensing and Environmental Modelling Group at Christian-Albrechts-Universität zu Kiel during May-June 2014. My internship project was to develop a Tidal Model for the coast of Helgoland, a small island situated off the coast of Germany. I had a great time working with them. They went out of their way to make me feel welcome and were always ready to help out with everything; be it accommodation, travel or work. They say that Germans are always punctual, they work hard during the weekdays and party harder during the weekends. Everything is true. They also encouraged us to work during the weekdays and travel around Germany during the weekends. Germany being a country rich in history, offered a lot to explore.

The highlight of my trip would be the Berlin meet where all of the WISE interns got an opportunity to meet each other and share their thoughts and experiences. Another unforgettable memory would be the way the Germans cheered their football team during the FIFA World Cup 2014. It was fun to see everyone celebrating each victory with so much enthusiasm. Overall, it was a wonderful experience and it has given me a lot of memories that I will cherish for the rest of my life. Some dreams do come true after all. Dear juniors, do not miss out on this wonderful opportunity!

-NAUREEN AZEEZ, Alumni, B.E GEOINFORMATICS

DAAD

Deutscher Akademischer Austausch Dienst
Servicio Alemán de Intercambio Académico



INDIA GEOSPATIAL FORUM 2014 HYDERABAD , INDIA



The GEOSPATIAL CONFERENCE was held between 5th of February to 8th February in Hyderabad International Conventional centre. This conference was organised by Geospatial Forum. It was attended by many industries (like Trimble, Google, Hexagon, Rolta, Faro to name a few) ,technologists, Experts and Directors of reputed Institutes, involved in the Geospatial Industry.



As second year students of the Geoinformatics discipline the conference was extremely useful for us in building contacts, and therefore getting opportunities for Internships and Industrial Visits. We also attended lectures of reputed professionals thus giving us ideas for further projects and work in this discipline. The conference refined and broadened our thoughts. We got ideas for projects and papers. Industrial requirements were well understood by us, thus giving us an idea of how much knowledge and capability is required to sustain ourselves in this field.

Being third year students, this period is very useful for us as we'll be sitting for our placements next semester. This conference proved to be a useful platform for us as we got to interact with delegates from various core companies like Rolta, Navayuga, Google, Trimble, Hexagon, etc.

“As a bird comes out of the shell of its egg to see the world,
we have come out of our shell to see the wide world”

Thanks To India Geospatial Forum

- Vishnu Varthan, Alumini, B.E GeoInformatics

FRESHERS VIEW

“BE Geo informatics”, I said, they all chuckled. “BE Geo informatics”, I said .“Wow! What a course! How you people decide wisely to select such field, that’s so unique, there is a good scope in the future”, they said. So, the thing is not about the course (rare or common), it is all about the person (wise or unwise) wise one will never embarrass you about your choice. Think!



S.MEGHA,FIRST YEAR.

“Geo informatics? What course is that?”“Cartography, photogramatary, Oceanography, something about landscape and satellite, remote sensing etc.”, I have said this almost 100 time with a weary tone but after knowing about the course completely I started giving them a new reply, “Mechanical or Civil or EEE or ECE or CSE or anything what are all these common courses about? Explain about these courses.”, People grin with shame and will change the topic. If you google about the above terms which I have mentioned you will advise your school juniors to opt Geo informatics.



ISHWARYA.V,FIRST YEAR

I had no ideas about what the course was about. People around me asked which course I had chosen in the College of Engineering once I came out of Counseling. When I replied that I chose Geo Informatics they have puzzled and did not have any clue about the course. Neither did I have any idea about it. But after doing some research I was able to discover the various diversities in the course. The scope was really good. After all these courses in one of the best college in Chennai. So Now I am happy about the selection.

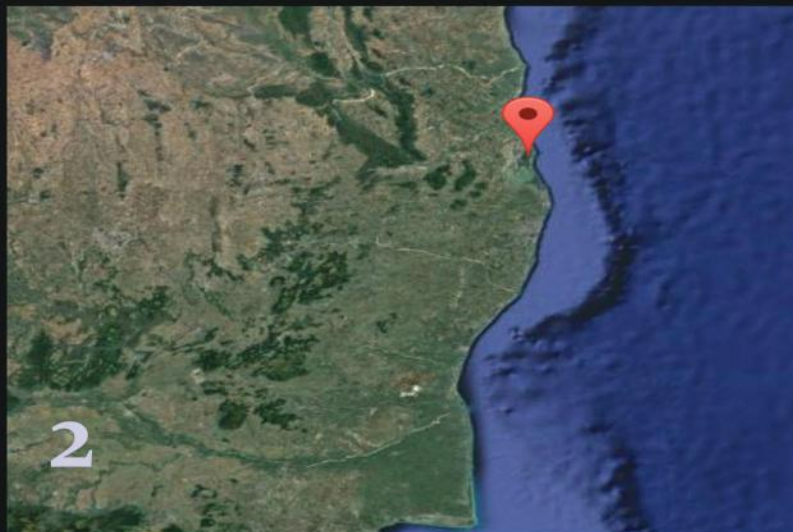


R.ROSHAN BENJAMIN,FIRST YEAR.



1

GUESS
THE
LOCATION !



2

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GUESS THE LOCATION

BEHIND THE SCENES

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