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BGCCCI ANNUAL REPORT (Fall 2016-Spring 2017)

The BGCCCI is a satellite center formed under the CUNY CREST Institute. It came into effect on the 3rd October, 2014 after a memorandum of understanding was signed between BCC (Provost Dr. Claudia Schrader and Director of NOAA-CREST Institute Prof. Reza Khanbilvardi). Several activities were organized and delivered at BGCCCI. They are aligned with one or more of the college and university’s strategic plan and are described briefly below.

Geospatial courses: Two new geospatial courses GIS 11 (Introduction to Geographic Information System) & GIS 12 (Introduction to Remote Sensing) were designed and approved by the Pathways Steering Committee. These courses were first offered in fall 2015 and their enrollments are given below for each semester. The new courses have brought in FTE to the college and have provided BCC students to enroll in emerging technology courses.

GIS Courses Taken by BCC Students	Number of Students
FALL GIS 11 2015 Course 87033	21
FALL GIS 11 2015 Course 87035	15
SPRING GIS 11 2016 Course 78844	13
SPRING GIS 11 2015 Course 66210	13
SPRING GIS 11 2016 Course 66213	6
SPRING GIS 12 2016 Course 66235	9
FALL GIS 12 2016 Course 39910	3
FALL GIS 11 2016 Course 44702	19
FALL GIS 11 2016 Course 39908	7
SPRING GIS 11 2017 Course 54757	14
SPRING GIS 11 2017 Course 50637	5
SPRING GIS 11 2017 Course 51657	20
Total	145

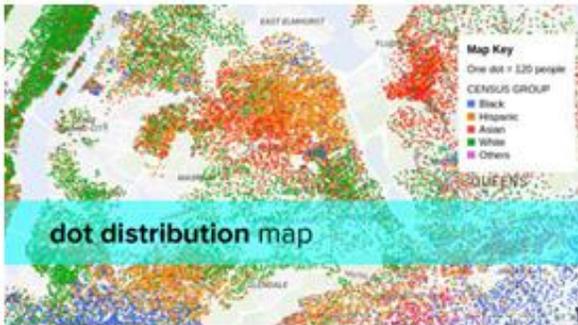
Summary of all the students enroll in GIS courses since Fall/Spring 2015-2017.

New Associate in Applied Sciences (A.A.S) program in Geospatial Technology: Bronx Community College (BCC) proposes to establish an AAS degree in Geospatial Technology. The 60 credits will also transfer to a BS in Environmental Health course at York College under an articulation agreement with York College. The goal of the program is to provide education and hands-on skills in geospatial technology. The hands-on training will be provided at the State-of-the-art Geospatial Computing Center at BCC College that is funded by numerous grants from the Industry, Federal government and the CUNY Workforce Development Initiative (WDI). Based on reports by the Employment Training Association and Department of Labor (US DOL), the geospatial industry is growing at an exponential rate (35%) each year.

This high growth sector also faces critical shortage of labor that needs to be addressed by a coordinated and national effort from Policy Makers, Industry, Universities and many others. The A.A.S. degree program will consist of 60 credits and will be a terminal degree as well as a pipeline to a 4-year B.S. in Environmental Health. The proposal has been submitted to the Office of Academic Affairs and is currently undergoing minor corrections and refinements. Two senior colleges (York and Lehman) have already expressed their interest in articulating to the A.A.S. program.

Creating internship and career pathways in geospatial technology: BGCCCI values its collaborations with the industry since the training at BCC must be relevant to the skill demands of the industry to address workforce needs. Experts from the industry are invited to deliver seminars/workshops/demonstrations. The seminars have a 90% attendance and are very popular with BCC students. They benefit by gaining valuable exposure to the geospatial industry and learn about geospatial skills that are currently being used by the industry. They also learn about current internships and career opportunities and create new networks with the industry.

- Expert Interactions with Industry Expert – CARTO, Michelle Ho, Geospatial Computing Center- ME 330, Wed 4/5/2017, 9:45-11:45 am.
- Expert Interactions with Industry Expert-Michael Georgalas, LANGAN, Geospatial Computing Center-ME 330, Wed 5/3/2017, 9:45-10:45 am.



Interactions with Industry: Michelle Ho from CARTO

April 5, 2017 9:45am-11:45am, BGCCCI Geospatial Computing Center, Meister Hall 330

At the BCC Geospatial Center, the Spring 2017 GIS students had the delightful opportunity to meet an expert from the geospatial industry. The expert was Michelle Ho, a GIS data scientist from the web mapping company CARTO. CARTO is a growing start-up company that specializes in cloud-computing platforms for interactive web-based GIS mapping. In other words, CARTO enables users of all types to do GIS and create thematic maps on the internet through the web browser. For the GIS students, this was not a typical lecture. GIS students signed-up for a free online account with CARTO and within minutes produced their first web-based interactive map on the internet. Michelle had given an informative review of GIS principles and shown the ropes of the CARTO web app to our curious GIS students.



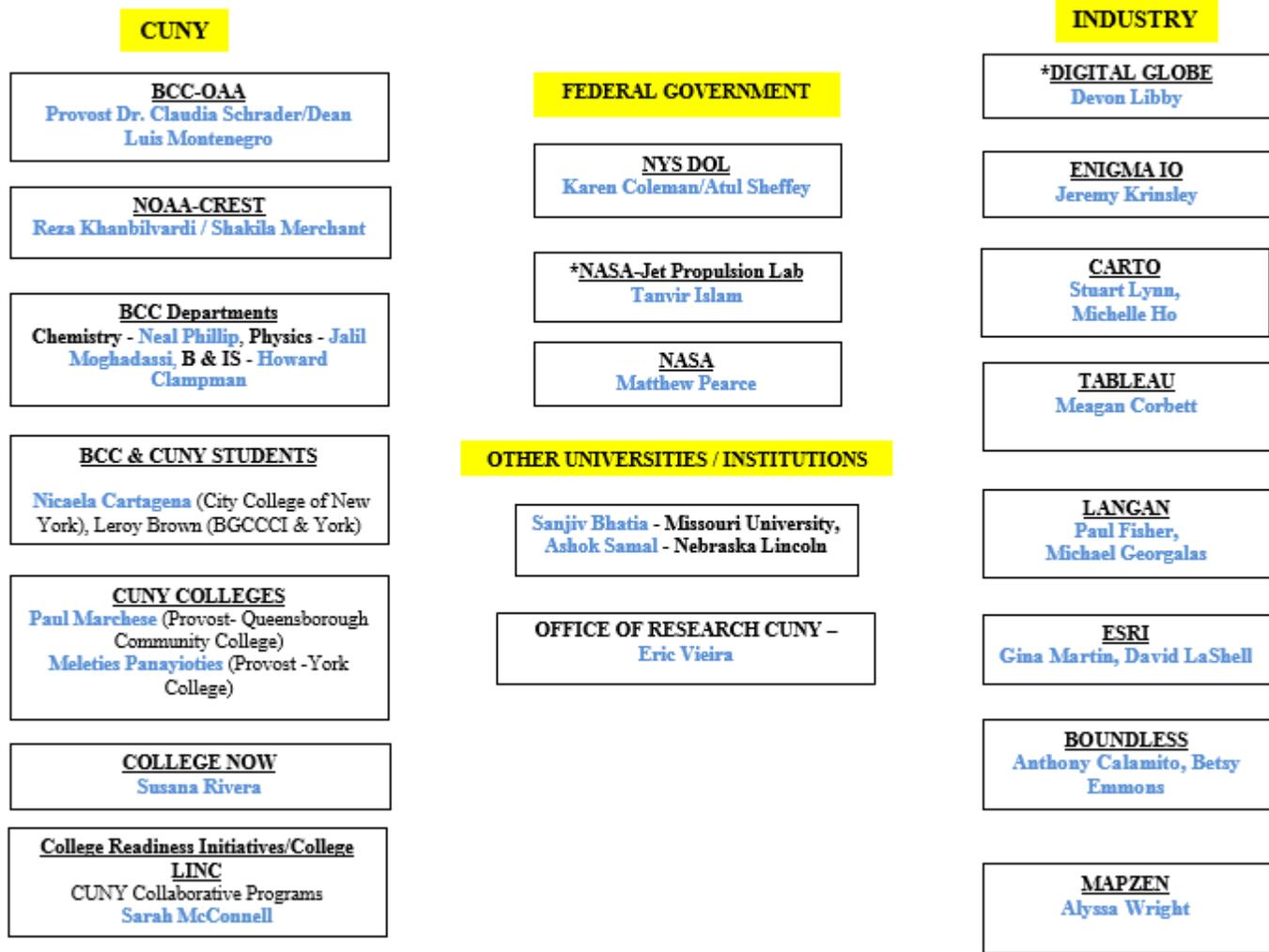
Interactions with Industry: Michael Georgalas from LANGAN

May 3, 2017 9:45am-10:45am, BGCCCI Geospatial Computing Center, Meister Hall 330

GIS students at BCC Geospatial Center had yet another wonderful opportunity to connect with an industry expert. This time it was Michael Georgalas, a Senior GIS Analyst from LANGAN, an environmental engineering company. Michael spoke to our students about LANGAN, his role in the company, the trends of GIS application and how it is shaping the industry, and how LANGAN uses Michael's GIS expertise in their various engineering projects. He showed them some of the projects he has worked on where GIS was used which included Brownfield Redevelopment and Building Design. He was met with attentiveness, excitement and curiosity from the GIS students. The GIS students asked several questions regarding his GIS projects. By the end of the event, the GIS students were left with quite an impression on the versatility of GIS and how valuable it can be for companies like LANGAN. They even had the insight scoop on the upcoming internships available at LANGAN.

The BGCCCI Advisory Board annual meetings: Each year BGCCCI advisory board members (mostly from the Industry) meet at the Geospatial Computing Center to discuss and plan collaborations focusing on creating out-of-the-box internship and career pipelines.

BGCCCI ADVISORY BOARD Chair – Dr. Sunil Bhaskaran – Director BCC Geospatial Center of the CUNY CREST Institute (As of 5-1-2017)



Multidisciplinary collaborations with departments: Affiliated faculty at BGCCCI deliver seminars about the applications of geospatial technology to a wide range of disciplines. The seminars inform the departments about geospatial technology and the applications. The seminars delivered in the past have received positive feedback from the departments and their faculty representatives.

- **‘Geospatial applications for managing trauma and emergencies’** - Hackensack Medical University Foundation, Dec 1, Hackensack University Medical Center Foundation, A member of Hackensack Meridian Health, 360 Essex Street, Suite 301, Hackensack, NJ
- **‘Mapping career pathways in geospatial technology’** - GeoNYC MeetUp, Monday, October 10, 2016, 6:30 PM, Mapzen, 30 W 26th Street, 7th floor, New York, NY.

- Evolution of the BCC Geospatial Center of the CUNY CREST Institute – The director of BGCCCI Professor Sunil Bhaskaran delivered a presentation on the development of Geospatial Technology at Bronx Community college at CARTO, 201, Moore Street, Brooklyn, New York.
- Geospatial Technology and Data Visualization, Department of Art and Music, Bronx Community College, City University of New York, 2155, University Avenue, Bronx 10453, New York.
- Harini Mittal-Entrepreneurship Meeting, Geospatial Computing Center-ME330, Tue 3/28/2017, 11:00-11:15 am
- Community and Public Health and the Environment, Stacia Reader, Geospatial Computing Center-ME 330, Thu 5/4/2017, 10:20-11:25 am



Applications of Geospatial Technology for Business Projects

Students of Professor Harini Mittal

March 28, 2017 11:00am-11:25am, BGCCCI Geospatial Computing Center, Meister Hall 330

Geospatial Technology has become a fast-growing, emerging field. Its broad range implications can be used to answer many real world questions. Here at the BCC Geospatial Center, the bright students of Dr. Harini Mittal had the wonderful opportunity to discuss how Geospatial Technology can be implemented in defining and achieving the goals of their business projects. Below is a summary of the student groups and their goals of their business projects. Students are encouraged to define their products and project ideas to better direct them in the use of geospatial technology.

Group 1: Lady, Christopher, Juan, Kimberly
 Business Goal: Produce an app for courier service to customers and businesses while ensuring safe transactions to occur between clients in the Bronx location.

Geospatial Questions

- What is the demographics to build the Customer Profile?
- Where are the locations of all local businesses?



Group 2: Pablo, Andy, Jamie, Leslie, Daphne
 Project Goal: Market self-charging case for cell phones relying on solar power and magnet/coil technology

Geospatial Questions

- Where are all the retail locations to market this charging case?
- What are the proximities of the retail locations to major highways?
- What are the demographics build Customer Profile?

Group 3: Stephanie, Tahmessha, Patrick, Daneesa
 Project Goal: Market specialized mats that uses disposal sheets to collect disposed hair to salons.

Geospatial Questions

- How many salons in NYC? What are the locations?
- What is geographic and spatial distribution of Private/Public Ownership of salons?
- What are the non-spatial data of interest associated with salons?

For Further Information Contact:

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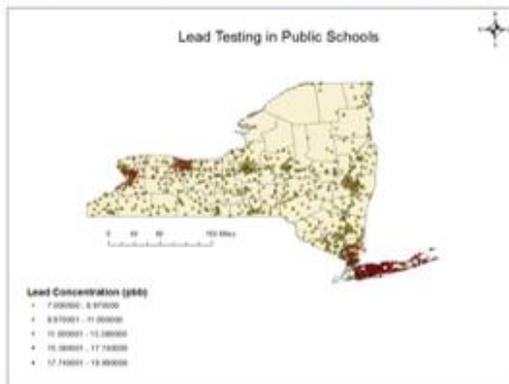
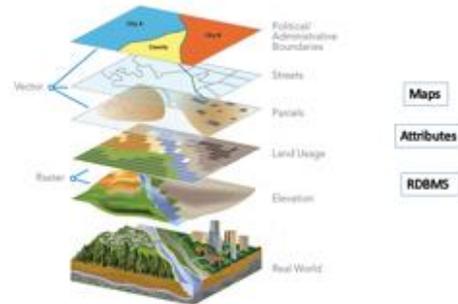
Geospatial Technologies for Health and Human Services

May 4, 2017 10:30am-11:30 am, BGCCCI Geospatial Computing Center, Meister Hall 330

The Public Health Students of Professor Stacia Reader were cordially invited to attend an important health workshop at the BCC Geospatial Center. The workshop introduced Professor Reader and her students to GIS and its implication to Public Health. Adjunct Faculty Asif Zaman of BGCCCI provided a crash course in GIS to the students. Later the students mapped hypothetical Lead Concentrations of Public Schools in New York. Students learned the GIS process of obtaining and cleaning open source data and importing the data into ESRI's ArcMap program. Students also understood the perils of using open source in terms of reliability. For most of Professor Reader's students, GIS was entirely a new concept. However, by the end of the workshop, students recognized how the understanding of health issues can be enhanced with the aid of GIS.



What is a Geographic Information System?



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CONFERENCE PARTICIPATION: Affiliated faculty and students participated in the first CUNY sponsored Geographic Information System summit that was co-hosted by the CUNY Interim Vice Provost Dr. Mark E. Hauber, Dr. Glenn Johnson, Dr. Andrew Moroko and Dr. Sunil Bhaskaran. The inaugural summit was attended by 80 delegates from across CUNY and the meet underlined the importance of geospatial education and research at CUNY. The following conference presentations were made by BGCCCI affiliated faculty and students.

- Sunil Bhaskaran and Leroy Brown, Mapping Landcover over New York City with high-res satellite data, CUNY GIS Summit, 3/3/2017, CUNY Law School, Brooklyn, New York.
- Sunil Bhaskaran, Pioneering Geospatial Technology at Bronx Community College – City University of New York, CUNY GIS Summit, 3/3/2017, CUNY Law School, Brooklyn, New York.

- Sunil Bhaskaran, The development of Geospatial Technology at Bronx Community College: A MODEL approach to preparing students for today's workforce, 6th Annual Tri-State Best Practices Conference
- Issues of Equity in Higher Education, March 4, 2017, Bergen Community College at the Meadowlands, New Jersey.
- Sunil Bhaskaran, (2016), Pathways in Geospatial Technology – A Model for CUNY, 1 December, 2016, John Jay College, New York. <http://www.centerdigitaled.com/events/CUNY-IT-Conference.html>



***The City University of New York
Geographic Information Sciences
Summit (GIS)***

Hosted by

***Dr. Mark Hauber
CUNY Interim University
Vice Provost for Research***

***Dr. Glen Johnson
Professor, CUNY Graduate
School of Public Health &
Health Policy***

***Dr. Sunil Bhaskaran
Professor and Director
Bronx Community College
Geospatial Center of the
CUNY CREST Institute***

***Dr. Andrew Maroko
Professor, CUNY Graduate
School of Public Health &
Health Policy***



Friday, March 3, 2017, 12:30-5:00pm

**The CUNY School of Law
The Dave Fields Auditorium, 2nd Floor
Two Court Square
Long Island City, New York**



BOOKS: The 2nd Edition of the book ‘Introduction to Geographic Information Systems was published by Kendall Hunt. The book is used by GIS 11 and GIS 12. The director of BGCCCI was invited to submit an expression of interest for a potential submission to a book chapter for the proposed edited book on **Open Cities| Open Data** to be published at the University of New South Wales, Australia. The director of BGCCCI was invited by the Mayor’s Office City of Dubuque, Iowa to deliver key note address – Annual Sustainability conference, 5th October.

GRANTS: Affiliated faculty at BGCCCI have an excellent track record in securing external and internal grants. The following table shows the grants awarded in the 2016-2017 academic year. The National Science Foundation’s Advanced Technological Education program (NSF-ATE).

- (2017) Training BCC students and faculty in 3D Geographic Information System Data Analysis and Modeling (**Status - funded \$16,000**).
- (2017) Teaching Early Childhood Students about Geospatial Faculty Mentor: Sunil Bhaskaran (**Status – Funded \$2,500**).
- (2017) CUNY WIDE GIS research repository (**\$15,000**).
- (2016) Pathways to Geospatial Technology and Careers [**\$900,000**], National Science Foundation-Advanced Technological Education, 2017, [**In review**]
- (2016) Mapping Air Quality in New York City using Geospatial Technology. Student Tech Fee [**\$7,000**]
- (2016) Interning to Careers in Geospatial Technology, Job Linkages Grant - BCC-OAA [**\$9,564.00**]
- (2015) **NASA Space Grant faculty mentor release time** [**\$6,000**]



Pathways to Geospatial Technology and Careers – National Science Foundation –

Advanced Technological Education (In review)

The program is designed to heighten awareness about geospatial technology and its application to STEM, increase and diversify the number of young adults interested and academically prepare them to enter into the field. It is a partnership between Bronx Community College, and York College who will work in collaboration with the industry, and federal agencies to train participants in geospatial technology. New model courses and degree programs will be designed to meet workforce needs. Innovative summer workshops, research internship and professional development programs in geospatial applications will be designed for students and educators from resource poor institutions. New articulation agreements between the proposed degree program and advanced level courses at senior colleges will be implemented, for facilitating effective career pathways. The project team will expand the well-qualified, diverse geospatial workforce and improve technician education of students from underrepresented groups of and lead them to career pathways in a high technology field that drives the country's economy.

The program is designed to meet the goals and objectives of the NSF-ATE: education of students with 21st century knowledge and skills to create a diverse world-class workforce that will make significant contributions to the geospatial industry. Proposed activities will focus on a) year-round workshops for students from resource poor schools and colleges b) student participation in national-priority faculty-mentored STEM research topics, and exposure to cutting-edge research and careers in geospatial technology c) professional development workshops for educators and faculty focusing on integration of technology and curricula d) development and assessment of new curricula and degree program in geospatial technology and STEM disciplines e) articulation of the program from two-year to four-year colleges f) Collaborations with the industry and federal agencies to create flexible workforce internship program and career pathways. The program will recruit students, educators, and faculty from resource poor schools and colleges to year-round workshops and developmental activities. In collaboration with the Industry, CUNY Office of Research Innovation and Entrepreneurship Initiative, and NYSDOL, the team will design out-of-the-box internship pipelines that will provide students with a flexible model for acquiring life-long learning skills and experiences critical for successful careers. Since Bronx Community + York colleges are minority-serving institutions with a diverse population of approximately 20,000 students, the program will successfully recruit and train students from historically underrepresented groups, changing demographics of the future workforce and, thus, fostering a stronger and inclusive economy of tomorrow.