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BCC GEOSPATIAL CENTER OF THE CUNY CREST INSTITUTE [Office of Academic Affairs]

ANNUAL REPORT 2018-2019

Mapping Your Careers

Center Website: @ <http://www.bcc.cuny.edu/academics/geospatial-center-of-the-cuny-crest-institute/>

Twitter: @BGCCCIGeo

BGCCCCI Activity Report [June, 2018 – June, 2019]

Summer 2018

In the five workshops that have occurred during the summer of 2018, middle school, high school students, undergraduate college students, and educators alike were allowed the opportunity to gain further knowledge and have interactive experiences with geospatial tools. Workshops contained lectures, field activities, and hands on training with geospatial analytical tools, and real time water and air quality monitoring devices. At the eventual end of the workshop students were able to create their own projects and present them, guest speakers from the industry spoke to students regarding careers and applications in Geospatial Technology. Accepted High School students, were able to do the same, however the application of geospatial technology was focused on investigating ‘Air Quality’. Undergraduate workshops focused on problem-based learning techniques to address real world problems, mapping and analyzing the patterns of invasive weed species, the patterns of crime in an urban neighborhood, site selection for solid wastes in New York City, and various other environmental applications of geospatial technology to different STEM disciplines. These three workshops for middle school, high school and undergraduate students were all designed on the basis of the students having no prior experience with geospatial technology. Another workshop, the Summer Workshop Internship Program allowed students with previous experience in geospatial technology to build on their geospatial workforce skills and assist with interning with a Geospatial company. Educators from various schools were able to attend the professional development workshop which was designed to improve upon the educator’s disciplinary abilities, teaching skills, and understanding of geospatial technologies and its implementation in classroom lessons.

Summer Workforce Internship Program [SWIP] for High School students offered the privilege of being part of a hands on and fully systematic research which enabled the students to fully engage in activities surrounding the Geospatial professional work field. The participants had the chance to not only participate in research projects but also present and publish in proceedings of conference and learn to write journal articles. Students were encouraged to participate in a field and array of data entry principles which consisted of various subjects such as elements of nature; freshwater soil and wetland soil, effects of dissolved nitrogen, animals, and inhalable particulate concentration. The research enabled students to feel more aware of the benefits and multiple uses that Geospatial technology provides.

Spring 2018

During the spring of 2018, two workshops were held for middle school and high school students. Upon completion of these workshops’ students were granted a stipend which was funded by the National Science Foundation. At the end of these workshops students were able to present individual projects, and be able to interact with a guest speaker, which at the end of the workshop was Bev Corwin of the Technology Transfer Delivery (TTD) Team who visited the Geospatial Center of the CUNY CREST Institute. Bev is the founder of TDD -Technology Transfer Days- who specialize in diverse collaborative learning events where invited speakers or educators within the industry speak about research, academia, and not limited to job opportunities. Workshops are not the only educational opportunities given; the Director delivered talks such as ‘Managing Earth from Space at the Wycoff Chamber of Commerce, and attended discussion panels about application of remote sensing for Smarter Cities. Thirty members from the Geospatial Information Systems and Mapping Organization (GISMO) the largest not-for-

profit Geospatial Association in New York State visited the BCC Geospatial Center of the CUNY CREST Institute (BGCCCI). The Director of BGCCCI was also invited to talk about Urban Sensing at a seminar by New York University-Kavli Futures, as well as attending the Defense and Intelligence Research Forum. There were also various collaborations including: Collaboration with New School and BCC Geospatial (AGG), New Orleans, Fresh Food Access: Socio-Spatial Approach, Smart Cities Workshop, Belize Geospatial Project and the Harris Corporation collaboration with the BCC Geospatial Center.

Fall 2018

During the fall of 2018, that began on October 6, 2018 through December 8, 2018, workshops were conducted for Middle School and High School Applicants to gain knowledge in Geospatial Technology. The Bronx Community College Geospatial Center of the CUNY Crest Institute, attended the Annual NSF-ATE Principal Investigator Conference in Washington, DC from October 23-25, 2018, this program fosters education, research, and workforce skills by offering a series of intuitive year-round workshops that promote spatial thinking, cutting-edge research internships in geospatial data, and professional development programs for educators. This is done in collaboration with a variety of industry, which allows new courses, programs, and internships to be designed in order to create pathways into geospatial technology and careers.

The Geospatial Center attended various events and fairs in addition to the NSF-ATE Conference. BGCCCI was also present at the ASAP Networking Event, where students were able to meet and talk with professionals working in a field related to their major; the Center also attended the GISMO fair that occurred at Hunter College on November 14, 2018, the purpose of the event was to give geography and GIS associate, undergraduate and graduate students the opportunity to meet and talk to professionals about experiences in their field of work and for students to submit their resumes to potential employers. The Geospatial Center also had visitors from ESRI – Environmental Systems Research Institute-, in which the industry giant delivered a one-day workshop to NSF-ATE participants at the BCC Geospatial Center of the CUNY CREST Institute. The workshops promoted spatial thinking and exposed NSF-ATE participants to exciting career opportunities in the geospatial sector.

NASA – EONS Spring Weekend Workshops 2019

During the spring of 2019, geospatial workshops were held for middle school students and high school students, sponsored by NSF- ATE and NASA-EONS. These workshops were held on Saturdays throughout the semester from March 2, 2019 to May 10, 2019 for NSF-ATE accepted participants, and May 18, 2019 for NASA-EONS accepted participants. For middle school students the workshops provided participants an opportunity to learn about Geospatial Technology and its applications for ‘Emergency Management’. It gave them an opportunity to learn about spatial concepts and acquire hands-on skills at BCC Geospatial Center of the CUNY CREST Institute (BGCCCI). Interactions with experts from the Industry visited the center. Jim Barry from ESRI informed students about exciting courses and careers in geospatial industry –. Participants presented a geospatial project at the end of the workshop. High School students on the other hand were able to learn about Geospatial Technology and its applications for investigating Air Quality. At the end of each respective workshop’s students acquired skills to be used in their academic field and future career field.

Fostering multi-disciplinary research and collaborations at BCC

Presentations delivered by the Director of BGCCCI

- **to the Criminal Justice Group**
- **Health and Wellness department**
- **To ASAP students**

Grant Awards

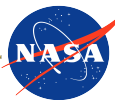
**(2018) Student Technology Fee – Special Project Funding, BCC-CUNY
(\$32,000)**

**(2018) NASA-EONS (2018-2020). Fostering and increasing participation in
geospatial technology and STEM at minority serving institutions (\$317,098.15)**

Working with the Industry to create out-of-box Internships and Career Pathways

5th ANNUAL BGCCCI ADVISORY BOARD MEETING

15th May, 2019



LANGAN



Minutes:

Venue: Geospatial Center

Chair: Sunil Bhaskaran

Members in attendance: Sunil Bhaskaran (chair), Michael Georgalas, Paul Fisher, Joseph Kerski, Luis Montenegro, Michael Hirsch, Jean Lu, Katherine Acevedo-Coppa

Excused: Jim Barry, Ushana Persaud, Zahira Munawar

Could not attend due to technical snag/s: Andrew Fore

Joseph Kerski [ESRI]: Commended efforts at the BCC Geospatial Center for promoting education, research and career pathways in Geospatial Technology. Described two current Internships at ESRI a) where students are invited to participate at the ESRI user's conference in San Diego and get a chance to assist in the management of the conference and network. The other Internship is offered during summer at Redlands, ESRI Head Quarters and other ESRI offices. This Internship draws participants mostly from Redlands. Joseph described the importance of naming courses to better reflect the content and purpose of courses. He suggested choosing the name of courses like 'Digital Earth', 'GIS to manage the environment', 'Geospatial Technology for Health and Human Services'. This is important to attract students from different STEAM majors to better understand the purpose and goals of any geospatial course. Joseph indicated that he would be happy to schedule meetings at BCC in the future to strengthen collaborations between BGCCCI and ESRI.

Michael Hirsch [HERE]: Michael indicated that HERE provided Internships but they were all located at Chicago. He requested for more information on the current geospatial courses and proposed programs even if it was a summary. He indicated that the interpersonal interactions with HERE staff and Interns was a critical component of the current HERE Internships. Michael also mentioned that there is scope to offer remote internships but it is an area that was not yet explored by HERE.

Paul Fisher and Michael Georgalas [Langan]: Both Paul and Michael highlighted their support to BGCCCI since the past 3-4 years. Michael highlighted his visits to the center for delivering guest lectures and demonstrations to geospatial technology students. They also mentioned about Internships at Langan and specifically commended the focus and efforts by BGCCCI to promote education, research and career pathways in geospatial technology.

Paul highlighted the different niche areas of focus at Langan, which includes surveying, geospatial engineering, laser scanning and drone technology. Paul expressed commitment towards building a model where experts from Langan would visit BGCCCI and BCC to deliver information sessions, customized hands-on workshops that would all lead to Internships and career pathways.

Andrew Fore [Harris Corporation]: Harris has been supporting BGCCCI since 2012 includes time before merger when the company was called Exelis. Andrew reiterated Harris support for BGCCCI in the future. Harris has supported the center since 2012 through provision of satellite imagery, software, curriculum support grant all worth thousands of dollars.

Luis Montenegro [BCC-OAA]: Luis Montenegro highlighted the contributions of BGCCCI in developing geospatial education and research at BCC-CUNY. He emphasized the need to secure industry feedback for the proposed certificate program and highlighted the importance of the proposed program especially for those who have completed an Associate or Bachelor degree and are looking to acquire additional education in GIS to advance in their current careers or shift to careers in GIS. Luis also emphasized on building strong relationships with Industry consortium and planning specific tours to companies with a view to giving students much needed exposure and firsthand experience of a professional company.

Katherine Acevedo [BCC-OAA]: Mentioned that she is keen to follow the developments at the center and its proposed roles to best determine how her office can support the center. At the 4th BGCCCI Advisory Board meeting Katherine had offered support to sponsor students for the ESRI Redlands based Internships.

Jean Lu [Parent]: Commended BGCCCI's efforts by citing her son's participation in the recently concluded geospatial workshops. Jean asked about the proposed geospatial certificate program at BCC and the typical job descriptions that would be available for anyone who completes the program successfully. Jean also described the relevance and importance of geospatial, applications to real estate.

Sunil Bhaskaran [Chair BGCCCI]: Gave a brief history of BGCCCI and its contribution in bringing geospatial technology at the forefront at BCC-CUNY leading to grants from the NSF-ATE and NASA-EONS programs. Inquired about the possibility of remote Internships so that the cost aspect could be offset to some extent without completely compromising the interpersonal interactions of Internships. Sunil mentioned about following up with all industry representatives for enabling the delivery of on campus and off campus [**at the company locations**] information sessions, workshops, fortifying Internships

Sunil thanked all the participants for their time and commitment to support BGCCCI in its growth as center of excellence in geospatial education, research and career pathways. The next BGCCCI Advisory board meeting will be held in May, 2020.

Advisory Board Member	Job Description	Short Description of Employer	Role on the BGCCCI Advisory board
Joseph Kerski – Environmental Systems Research Institute [ESRI]	Education Manager: Joseph Kerski is a geographer with a focus on the use of Geographic Information Systems in education. Joseph Kerski was the President of the National Council for Geographic Education in 2011.	[ESRI] Esri is an international supplier of geographic information system software, web GIS and geodatabase management applications. They built ArcGIS, the world's most powerful mapping and spatial analytics software.	Joseph serves on the board in his capacity as ESRI's education manager. His role is to disseminate content for GIS education, advise on the development of new curricula, and provide internship opportunities to skilled technicians
Michael Hirsch – Here Technologies [HERE]	Director of Product Management, Developer Relations at HERE Technologies. Responsible for the integration of HERE Location Services (developer platform) with market-leading developer ecosystems. Responsible for the production of developer-facing tutorial, educational, and rich content.	[HERE] Here Technologies is a company that provides mapping and location data and related services to individuals and companies.	Michael serves on the board in his capacity as Director of Product Management at HERE. He advises BGCCCI on strategic projects, internships. He is keen to build a pathways for internships specifically on coding in geospatial technology
Paul Fisher – Langan Engineering	Paul Fisher is a Senior Vice President at Langan Engineering and has 29 years of experience, which have exposed him to all phases of land surveying, including topographic, boundary, subdivision, construction stake-out, and photo control.	[Langan Engineering] provides an integrated mix of engineering and environmental consulting services in support of land development projects, corporate real estate portfolios, and the energy industry.	Paul Fisher serves on the board in his capacity as the Senior Vice President at Langan Engineering. He advises BGCCCI on Internships, special projects - Laser Scanning, Drone technology for surveying, New curricula on Surveying, Geospatial technology and workshops and demonstrations of new equipment and software at Langan.

Michael Georgalas	Michael is a Senior GIS Analyst at Langan Engineering. He has 17 years of experience in Geographic Information System (GIS) mapping and analysis to support government, urban planning, environmental, survey, geotechnical and site/civil projects.		Michael serves on the board in his capacity as senior geospatial analyst at Langan. He advises on development of new curricula, special projects that focus on spatial analyses. Michael delivers guest lectures and demonstrations at BGCCCI
Andrew Fore – Harris Corporation	Andrew is the Account Manager for Education and NGOs at Harris Corporation: Employee at Harris Corporation, where he reiterated support for BGCCCI in future activities.	[Harris Corporation] Harris Corporation is an American technology company, defense contractor and information technology services provider that produces wireless equipment, tactical radios, electronic systems, night vision equipment and both terrestrial and spaceborne antennas for use in the government, defense and commercial sectors.	Andrew serves on the board in his capacity as an education manager. He collaborates with BGCCCI in the provision of new software licenses, new extensions – Deep learning, Machine learning and data mining. Andrew is currently working with BGCCCI on developing CUNY wide collaborations focused on the applications of Environmental for Visualizing images and Interactive Data Language [ENVI-IDL]
Luis Montenegro– Bronx Community College [BCC]	IVP and Provost for Academic Affairs at Bronx Community College.	[BCC-OAA]: The Bronx Community College of The City University of New York is a community college located in the University Heights neighborhood of The Bronx on a landmarked campus. It is part of the City University of New York system	Luis serves on the board in his capacity as the Interim Provost of BCC. He advises the board on matters related to strategic and educational initiatives of BGCCCI, Internships and collaborations.
Katherine Acevedo – Bronx Community College [BCC]	Academic Affairs Manager for Special Projects at Bronx Community College.	[BCC-OAA] The Bronx Community College of The City University of New York is a community college	Katherine serves on the board in her capacity as the Manager for special projects at BCC. She advises the board on

		located in the University Heights neighborhood of The Bronx on a landmarked campus. It is part of the City University of New York system	matters related to educational initiatives of BGCCCI, Internships and collaborations.
Jean Lu	Parent	N/A	Jean serves on the board in her capacity as a parent and BGCCCI supporter. She uses her social network to support ongoing BGCCCI initiatives funded by NASA and NSF-ATE. Jean also liaises with the Tenafly school system to support BGCCCI recruitment initiatives for the all year round workshops and program
Sunil Bhaskaran - Bronx Community College Geospatial Center of the CUNY CREST Institute [BGCCCI] [Chair: BGCCCI Advisory Board]	Founded the BCC Geospatial Center of CUNY CREST Institute (BGCCCI). Has a Ph.D. (2003) from the School of Geomatic Engineering, University of New South Wales, Sydney. His research interests are in spatial analysis, image analysis, modeling, data integration and decision support systems.	The Bronx Community College Geospatial Center of the CUNY CREST Institute or BGCCCI is a collaborative satellite center of the CUNY CREST Institute.	Sunil serves on the board as the founding director and chair of BGCCCI. He directs the center and is responsible for its overall management and growth. He is the principal investigator on many federal and privately funded programs and the main liaison between BGCCCI and federal sponsors like NSF-ATE, NASA, Digital Globe, Harris Corporation and others. He leads the center's efforts in the creation of learning content and delivery of workshops and new curricula.
Jim Barry- Environmental Systems Research Institute [ESRI]	Jim Barry is a 25-year GIS professional currently working as a GeoDeveloper Advocate with Esri, supporting developers, students, startups, and others building maps, data, apps, and systems	[ESRI] is an international supplier of geographic information system software, web GIS and geodatabase management applications. They built ArcGIS, the world's most powerful mapping and	Jim serves on the board in his capacity as ESRI's main liaison in the North East for building educational awareness about ESRI's new toolsets and collaborations. Jim has a history in delivering

	on the ArcGIS platform.	spatial analytics software.	workshops at BGCCCI since the past 5 years and is the main contact for ESRI.
Ushana Persaud – Part time BGCCCI Coordinator	Jim Barry is a 25-year GIS professional currently working as a GeoDeveloper Advocate with Esri, supporting developers, students, startups, and others building maps, data, apps, and systems on the ArcGIS platform.	[ESRI] is an international supplier of geographic information system software, web GIS and geodatabase management applications. They built ArcGIS, the world's most powerful mapping and spatial analytics software.	

Summer 2019 – Undergraduate Geospatial Workshops

During the summer of 2019 various workshops were held for middle school, high school, college undergraduate students, and professional educators under the NSF-ATE or NASA Sponsored Grants. Under the NSF- ATE Grant College and high school students were able to participate in the Summer Workforce Internship program, which allows students with previous experience in GIS technology to apply their previous knowledge. The goal of the SWIP is to train participants in industry relevant geospatial and STEM research projects. Participants from high schools and colleges will engage in cutting-edge research and be mentored by expert faculty at the BCC Geospatial Center of the CUNY CREST Institute and York College. They will learn research methodologies, data analyses, perform literature review, and write technical reports / peer-reviewed journal articles and present research outcomes at conferences in the New York City region. Wherever possible an industry mentor will be included in the SWIP team.

NSF workshops are held for middle school, high school, and undergraduates. Educators also have the ability to participate in the Professional Development Workshop, which will be occurring for both NSF and NASA. The summer 2019 geospatial workshops for undergraduates started on the 3rd June, 2019 at BGCCCI. Participants from colleges in New York City and a few from outside as well will work their way through a series of inquiry-based hands-on workshops that will expose them and train them to work with open source data, perform spatial analysis, change mapping and expose them to the best in the Industry. The participants come from a wide range of STEAM backgrounds are hoping to acquire spatial skills that will enable them to better understand the power of spatial data for making informed decisions. Orienting sessions offered before and during the workshops for instructors and graduates assist them in honing their skills. Since 2010 BGCCCI has been educating and promoting geospatial technology in the region and has grown into a major center of excellence consisting of a unique ecosystem of students, faculty, community, industry and several other important stake holders.

BGCCCCI activities and its alignment to BCC-CUNY Strategic Plans and Goals?

The overarching vision of Bronx Community College is to effectively invest in each student's success by engaging with them in an integrative and supportive environment that facilitates the development and achievement of their educational and career goals. Graduates will be prepared to understand, thrive in, and contribute to a 21st - century global community marked by diversity, change, and expanded opportunities for lifelong learning and growth. Since its inception, BGCCCCI has been demonstrating that all activities conducted by it in the past were aligned with this overarching institutional plan. The proposed (2017-2018) plan is well aligned to this vision because it focuses on training and educating students in emerging technologies and designing innovative out-of-the-box internship and career pipelines. The proposed plan also addresses the Goal#5 and Goal#7 of the BCC Strategic Plan – ‘To Cultivate a 21st Century Curriculum’ and ‘To Promote a Reputation for Excellence’ by designing new courses and programs that meets workforce needs of the industry. The proposed and continuing national and international collaborations at BGCCCCI, high success rates in getting external funds will further grow the center and help in creating a unique brand image within CUNY and in the region. The proposal submitted to the National Science Foundation's Advanced Technological Education Program (being reviewed) would enable BGCCCCI to grow the center to a world-class regional entity.

Description of proposed activities	Alignment to BCC-CUNY strategic plans
<ul style="list-style-type: none"> Fostering multidisciplinary projects with BCC academic departments. 	Goal #3: Deepen student learning {Promotes integrated faculty learning, Promote and encourage excellent teaching and scholarship.
<ul style="list-style-type: none"> Undertaking cutting-edge undergraduate research projects with internal and external clients. 	Goal #3: Promote and encourage excellent teaching and scholarship.
<ul style="list-style-type: none"> Workshops for primary, middle and higher secondary schools. 	Goal #3: Deepen student learning {Promotes integrated faculty learning, Promote and encourage excellent teaching and scholarship.
<ul style="list-style-type: none"> A.A.S. in Geospatial Technology. 	Goal #5: Cultivate a 21 st Century Curriculum {strengthen program outcomes by maintaining formal linkages with four-year colleges and industry.
<ul style="list-style-type: none"> Expert workshops for BCC students. 	Goal #5: Cultivate a 21 st Century Curriculum {strengthen program outcomes by maintaining formal linkages with four-year colleges and industry.
<ul style="list-style-type: none"> Delivering workshops for the community. 	Goal #7: Promote a reputation for excellence 1. Build and promote a brand around a learning-centered culture. 2. Promote pride in BCC. 3. Engage faculty, staff, students, alumni and supporters in telling their BCC success stories. 4. Illustrate BCC as a premier institution with branding messages and media sources.
<ul style="list-style-type: none"> Internships, Workshops and 	Goal 7: Promote a reputation for excellence 1. Build and promote a brand around a learning-centered culture.

International Conferences.	<ul style="list-style-type: none"> 2. Promote pride in BCC. 3. Engage faculty, staff, students, alumni and supporters in telling their BCC success stories. 4. Illustrate BCC as a premier institution with branding messages and media sources.
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Budget – Fiscal 2019

Budget Category	Details	Total Amount	Funding from College	Funding from CUNY	Funding from Grants and Award	Other funds
Personnel						
Director	<i>Summer Salary [Includes \$37,635 from federal grants + adjunct replacement at \$4,530 per course]</i>	\$55,755	\$18,120 <i>Reassigned time of 12hr. [6hrs for spring and 6hrs for Fall] from OAA</i>	-	\$37,635	-
Staff	<i>Administrative Support [To assist the director in managing the geospatial center and two major federal grants for the College]</i>	\$41,235	\$15,600	-	\$25,635	-
Stipends	-	-	-	-	-	-
Total Personnel	-	\$96,990	\$33,720		\$63,270	
<i>Other than Personnel Services [OTPS]</i>						
Travel		\$9,470	-	-	\$9,470	-
Stipends	<i>For participants in NSF & NASA workshops</i>	\$255,900	-	-	\$255,900	-
Equipment	-	-	-	-	-	-
Supplies		\$22,476	-	-	\$22,476	-
Other						
Total OTPS		\$287,846			\$287,846	

*** 3/9th of annual salary is paid by two federal grants [NASA & NSF-ATE] for 2019 and 2020.**

BGCCCI ASSESSMENT METRICS

All activities are assessed by using formative and summative model of assessment. Activities are evaluated and assessed by assessment metrics (see below) as well as by an external evaluator.

Description of activities	Assessment Mode	Remarks
1. Workshops and training	Survey	
2. Research	Publications – Journals, Reports, Conference presentations	
3. Seminars	Survey	
4. Internships	Project completion	
5. Sponsored events	Survey, feedback form	
6. Geospatial Computing Center	Space use	
7. International Collaborations	Project results, publications, reports	
8. National Collaborations	Project results, publications, reports	
9. Center support for college and CUNY	Survey	
10. External Grants	Grants awarded	

BGCCCI Quick Look fact sheet [2014-]

BCC Geospatial Center of the CUNY CREST Institute [BGCCCI] is a unit under the Office of Academic Affairs. Reports to the Interim Provost of BCC-CUNY – Dr. Luis Montenegro

Founding Director – Professor Sunil Bhaskaran

Web site: <http://www.bcc.cuny.edu/academics/geospatial-center-of-the-cuny-crest-institute/>

Twitter @BGCCCIGeo

Part time Staff: Ushana Persaud, Meloryn Quezada and Zahira Munawar.

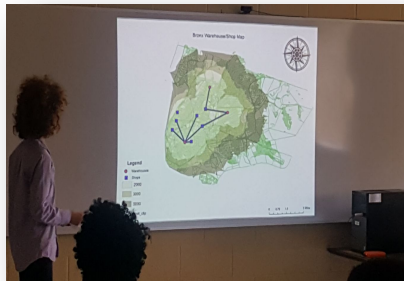
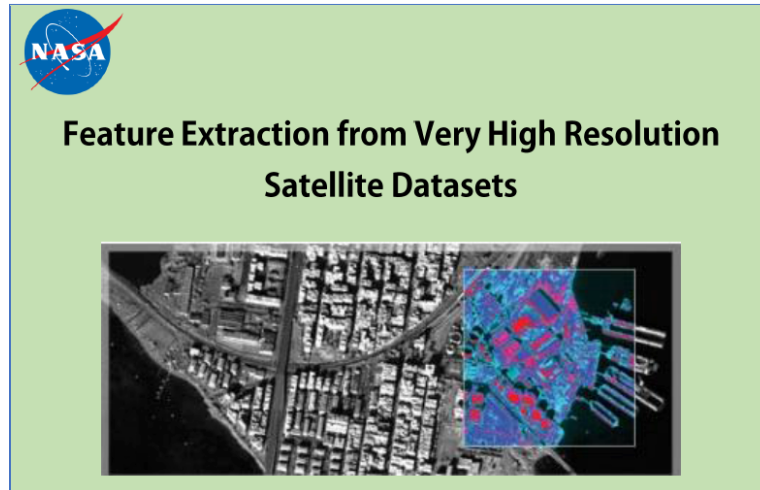
Full Time Staff: None



Appendix

1. Photographs from NSF-ATE and NASA Geospatial Workshops

1



Participants at the weekend geospatial workshops – Geospatial Computing Center [ME 330]



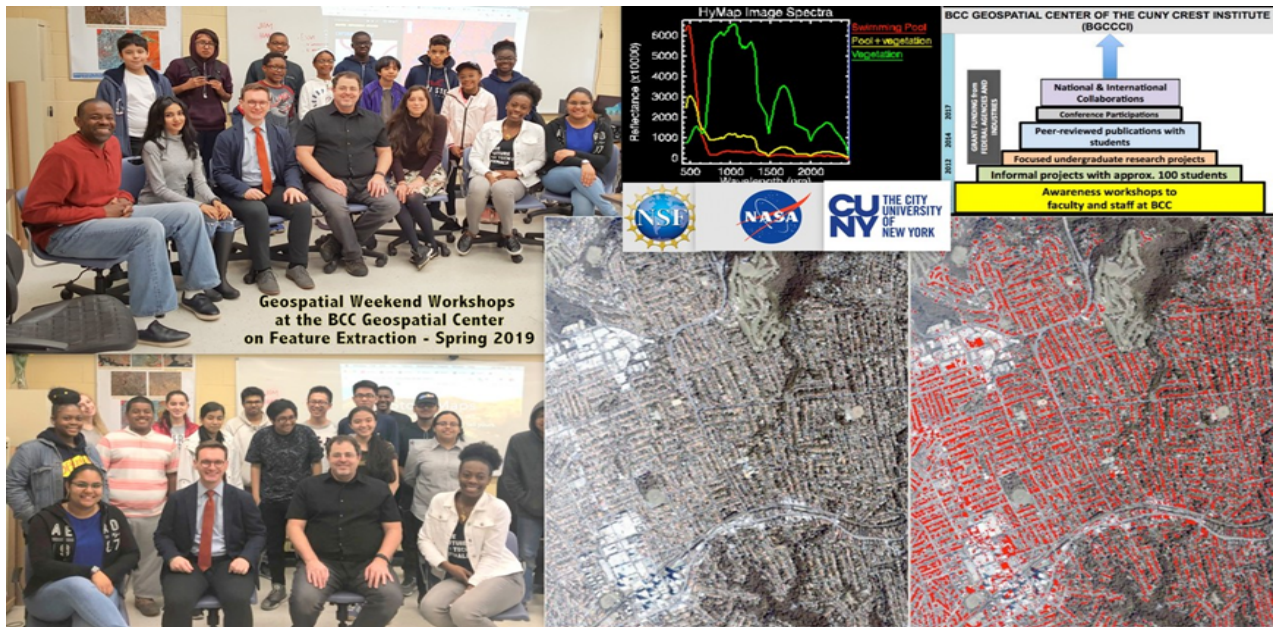
Participants at the Weekend Geospatial Workshops – Geospatial Computing Center [ME 330]





Guest workshops by the Industry

Jim Barry from ESRI largest Geospatial Company delivering workshops to participants



Presentations by participants, closing ceremony, family cafes, site evaluation and stipend awards

