Greetings:

NASA is about going places, about our future. It’s where America dreams big. For many of us, it’s what inspires our work to explore the worlds of our solar system and beyond. It’s also about our distant past: the origins of the universe and how Earth came to be. In New York, we’ve got it all: from Buffalo to Manhattan, the consortium’s growing list of affiliates represents the aerospace industry, colleges, universities, K-12 education, and more. We’re all working alongside NASA to make these dreams a reality, for the nation and for our nation’s next generation of engineers and scientists.

NASA Space Grant enhances science, technology, engineering, and math (STEM) learning from K-12 to higher education to public outreach. In particular, Space Grant helps prepare NASA’s future workforce by supporting thousands of STEM students with competitive fellowship, scholarship, and internship opportunities. We have a proven record of encouraging young students to continue in STEM careers, and we are particularly proud of our successes in providing opportunities to women and underrepresented minorities in the state.

It’s in this context that NYSG created a unique summer internship opportunity: 10 students, 10 weeks, $10,000, and 10 cm. The summer CubeSat project at Cornell University asked this diverse group of students to design and build a 10 cm CubeSat. That’s never been done in less than a year, and rarely for this little money, but these students showed that 10 weeks and $10K can be enough. And theirs is no ordinary small-sat. This one is inspired by the Breakthrough Starshot initiative, an audacious plan to send a probe to Alpha Centauri within the next 20 years. Isabel Dawson led the NY high school team whose Breakthrough-inspired proposal was a winner of the Museum of Science Fiction’s international CubeSat competition. Her win provided the concept, and the funding, for the spacecraft hardware, and NYSG funded the interns. You can read more about her experience in this newsletter.

We expect the spacecraft will be accepted by NASA’s CubeSat Launch Initiative later this year. CSLI will give this little spacecraft the opportunity to demonstrate its technology in orbit: it will deploy a super-thin, 4 square-meter sail controlled by a tiny spacecraft-on-a-chip. This student-built mission will demonstrate the principles of a spacecraft that could take that giant leap to the stars in the decades to come. Let’s remember that New York Space Grant took the first small step.
I was one of fifteen Research Associates (RAs) in the NASA Space Hardware/Robotics Academy at Marshall Spaceflight Center this summer. This was easily the best summer of my life, and it wouldn’t have been possible without the New York Space Grant’s gracious financial support. My project for the summer was, with three other RAs, to build a robot that could capture debris in low-earth orbit. Since NASA has no current plans to clean up orbital debris, which numbers between 200,000 and 300,000, this was a proof-of-concept prototype that demonstrates electrostatic adhesion (adhesion via static electricity) is a viable solution to the debris problem.

We named our robot EDUARDO, for Electrostatic Detainment Unit for Automated Removal of Debris in Orbit. With the ability to rotate its shoulder joint, extend and retract its arm, and rotate its wrist in order to capture space debris, the end effector of the robot is a commercially available electrostatic gripping device from a company called GrabIT. The extending/retracting arm is made from two Gala-Systems Spiralift jacks.

For our demonstration of the concept, we built a half-scale mockup of Landsat 7, an Earth-surveying satellite launched two decades ago and currently running out of fuel. Our demonstration exhibits EDUARDO’s use as a preventative measure against further orbital debris. The following video shows EDUARDO in action: https://youtu.be/cSZpYRTDQc0

While designing and building EDUARDO was an incredibly rewarding experience, I also had equally rich experiences outside of the lab. RAs are expected to juggle research projects with leadership development activities on a condensed schedule. As a result, we were funded for trips to Cape Canaveral and Los Angeles to tour other NASA centers and companies in the space industry.

We were invited to see NASA’s Kennedy Space Center (KSC) and the joint NASA and CalTech Jet Propulsion Lab, as well as KSC’s Swampworks, Aerojet Rocketdyne, Lockheed Martin’s Skunk Works, The Spaceship Company, Virgin Galactic, and United Launch Alliance. These tours were immensely informative, allowing me to assess career options and ascertain my fit in each company’s culture. In addition, we also had plenty of time for personal development such as skydiving, whitewater rafting, and other team bonding exercises.

In short, this has been a phenomenal summer with a phenomenal group of people bringing to life the next big ideas. I gleaned so much about NASA, the space industry, and myself. If I could, I would do the NASA Academies over again and again!

—Julia Di, Columbia University ’18
As a new member of the New York Space Grant Consortium, the Public Programming division of the Intrepid Sea, Air & Space Museum uses Space Grant funds to support high-level speakers for its free Family Astronomy Nights. These very popular evenings have featured exoplanets with Steve Howell, Kepler project scientist, Denton Ebel, curator of the meteorite collection of the Department of Earth and Planetary Sciences at the American Museum of Natural History, and others. Each evening concludes with telescopes on the flight deck of Intrepid for sky viewing, weather permitting.

On Friday, July 15th, only 11 days after its arrival at Jupiter, the Juno mission was given center stage thanks to special assistance provided by JPL (Jet Propulsion Lab) and NASA. A mini Juno exhibit was created inside hangar 3 with a quarter-scale model of the Juno spacecraft, a full-scale model of its radiation vault, and a large 36-inch Jupiter globe. Kevin J. Hussey, Manager of Visualization Technologies at JPL, demonstrated how the mission could be followed using NASA eyes-on 3D-interactive Mission visualization software, available to all at: http://eyes.nasa.gov/juno. Using this free software, anyone can very accurately and beautifully “retrace” all of the highlights of the mission.

The highlight of the evening was special guest Scott Bolton, principal investigator and lead scientist for Juno. This was Scott’s very first public presentation since Juno’s arrival at Jupiter, including never before seen images and stunning visualizations. Bolton kindly agreed to giving two back-to-back presentations when it became clear the theater, already overflowing with eager visitors of all ages, would not contain the enthusiastic crowd lined up outside, with just over 1,700 in attendance. Thanks to the wonderful coverage Juno received in the news media, attendees were both aware of the mission and excited to hear from its lead scientist. Following each presentation, the exiting audience was directed to the Juno exhibit where they learned how to download and use NASA’s free eyes-on software. —Ellen Silbermann
Students Design, Launch Rockets at Rocket Team Challenge

Syracuse University’s College of Engineering and Computer Sciences along with the Milton J. Rubenstein Museum of Science & Technology (MOST) launched 84 rockets at Skytop Field on Saturday, June 4, 2016 as part of the 14th annual Central New York Rocket Team Challenge. There were 60 teams that launched in the junior division (students in grades 4 through 8) and 24 in the senior division (high school students). A total of 550 students participated from 15 school districts in Central New York counties. The event is funded by Lockheed Martin, Syracuse University’s College of Engineering and Computer Science, Time Warner Cable’s Connect a Million Minds, the Technology Alliance of Central New York, and NY Space Grant. There were 90 volunteers from the above-named organizations and companies.

The competition included scoring each team’s knowledge of rocket science, estimated apogee versus recorded apogee, rocket aesthetics, flight performance, experience of the “eggstronaut,” and overall rocket construction.

Teams estimated apogee using RockSim, a sophisticated computer program that allows students to simulate a rocket’s flight to see how high and how fast it will go. It is real rocket science! In the senior division, the first place team predicted their apogee to the foot, something that has never happened before. —Peter Plumley

Engaging Rural Communities

The Sciencenter, an interactive science museum in Ithaca, uses NY Space Grant funds to engage rural, upstate New York communities in hands-on physical earth and space science activities. Rural children and families often have less access to resources because of issues with transportation, so the Sciencenter brings activities out to their communities for Family Science Nights. 683 elementary school students and 106 parents have participated in the last year.

The Sciencenter also provides scientists and university students with training in science communication for a public audience. These Family Science Nights provide an opportunity for scientists and students to hone public communication skills. —Michelle Kortenaar
Summer Interns Employed Post-Graduation at Lockheed Martin

Three previous New York Space Grant awardees are now working full- and part-time at Lockheed Martin (LM) as of this past summer. Matthew Liu (City College of NY), Edward Samuels (University of Rochester), and Matthew Churchman (Binghamton University) worked as summer interns on Lockheed Martin’s underwater rover project in the summer of 2014, and their efforts have paid off.

Matthew Liu, after interning a second time with LM in 2015, graduated this past spring with a degree in electrical engineering and joined the company’s product engineering group. Edward Samuels has also been working full-time in the product engineering group as an electrical engineer for the last few years. Matthew Churchman, after graduating, is employed as a part-time intern in the mechanical engineering department as he simultaneously works on his Masters of Science in Mechanical Engineering.

In addition, with Churchman and Samuels are paying it forward, serving as project mentors for Lockheed Martin’s 2016 summer internship team.

—Paul Mittan

Space Grant Internships at NASA & NY Industry: Summer 2016

This summer, NYSG supported research at Cornell University and affiliate institutions, plus awarded funds to four NY students who interned at NASA. Seven additional students were funded as Space Grant interns at aerospace companies within NY State. See more details on the NASA and industry interns in the table below.

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<tr>
<th>LOCATION</th>
<th>NO. OF STUDENTS</th>
<th>STUDENTS’ HOME INSTITUTIONS</th>
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<tbody>
<tr>
<td>NASA Goddard Institute for Space Studies (GISS)</td>
<td>2</td>
<td>New York University and Stony Brook University</td>
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<tr>
<td>NASA Marshall Spaceflight Center</td>
<td>2</td>
<td>Columbia University and Rensselaer Polytechnic Institute</td>
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<td>Lockheed Martin (Owego, NY)</td>
<td>3</td>
<td>Binghamton University (2) and University at Buffalo</td>
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<td>Moog Inc. (East Aurora, NY)</td>
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<td>Rensselaer Polytechnic Institute, Rochester Institute of Technology, and University at Buffalo</td>
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<tr>
<td>Ursa Space Systems Inc. (Ithaca, NY)</td>
<td>1</td>
<td>Rochester Institute of Technology</td>
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This year, NY Space Grant Consortium funding supported diverse research, education, and outreach activities at the Mechatronics, Controls, and Robotics Lab. These activities have focused on advanced control technology, mechatronics related experimental effort, and pre-college outreach.

In one recent research, we integrated computer vision, 3D virtual graphics, and touchscreen sensing to develop mobile apps that provide interactive augmented reality visualizations. We used representative laboratory test-beds to validate three architectures that support our human machine interaction paradigm and employ mobile devices in three distinct roles: user interaction, sensing, and control (Fig. 1). Experimental results demonstrate the performance and efficacy of the developed systems and address the benefits and challenges of the proposed approach.

During the week of July 2-9, 2016, Jared Alan Frank (NYSGC funded doctoral student) was one of 10 American graduate students who traveled to three cities in France as part of the French-American Doctoral Exchange Seminar (FADEx). This seminar was part of an effort to support French-American scientific collaborations related to the area of cyber-physical systems. During the week, students shared their ongoing research in application domains such as cybersecurity, human-machine interaction, robotics, traffic systems, and Internet-of-Things as part of structured seminars, workshops, panel discussions, and poster presentations.

In summer 2016, the Mechatronics, Controls, and Robotics lab hosted synergistic K-12 STEM education projects and several undergraduate students. Two NYU Tandon undergraduate students, Ezra Idy and Gui Hui Lui, collaborated with graduate students to design, develop, prototype, and evaluate gaming-based, telerehabilitation devices for stroke patients. Moreover, five high school students, Maeve Farrell, Gloria Ngan, Pranay Neelagiri, Prthyi Srinivasan, and Wen Zheng, worked on an array of efforts with the robots and mobile app. Through these activities, students learned and applied numerous new skills and tools, e.g., mechanical design, modeling, 3D printing, sensing and instrumentation, computer vision, motion analysis, Arduino and Raspberry Pi hardware platforms, Matlab-Simulink programming, graphical user interface design, mobile app design and programming, etc.

—Vikram Kapila

See http://engineering.nyu.edu/mechatronics/ for additional details.
**CORNELL UNIVERSITY**

**IHS Students Work on CubeSat**

*above: Members of Cornell’s CubeSat team display their prototype solar sail. –Tom Fleischman*

In early April, I learned my Ithaca High School (IHS) team, CayugaSat, had been selected as one of three winners of the Museum of Science Fiction’s CubeSat design contest. Along with the honor of having our design selected, I was given the amazing opportunity to work in the Space Systems Design Studio, the lab of Cornell Engineering Professor Mason Peck. A CubeSat is a grapefruit-size satellite. Components for building one are readily available; Cornell has already launched several of them. This summer’s spacecraft was based on my team’s design, with an added challenge: to design and build in 10 weeks what normally takes over a year. Even more challenging was our goal to create a spacecraft that could launch a large laser sail. This is the core technology for the Breakthrough Starshot project, a multi-million dollar effort to reach our nearest star. There was a team of thirteen people in the lab, and I was one of only two high school students. I was assigned tasks involving matrices calculations, figuring out how the radio on our satellite would communicate, and helping with research of any kind. I don’t know if I will end up pursuing an engineering degree when I go to college, but I can say that my summer spent helping to build a satellite was an unforgettable opportunity that I am lucky to have had. When I see those satellites passing high overhead at night I’ll have a whole new perspective on what it took to put them there.  

—Isabel Dawson

**MEDGAR EVERS COLLEGE**

**Students Learn Coding Skills**

*above: Ahmed Diallo, MEC SG Fellow, working in the lab.*

Medgar Evers College (MEC) Space Grant fellows participated in the NASA Goddard Institute for Space Studies (GISS) summer research program to foster undergraduates’ coding and computer skills, such that they can be adept users of such models. An undergraduate student team, Matt Walls, Ahmed Diallo, Jason Craig, and Robert Lucci, worked with faculty investigating the use of artificial intelligence and developing a preliminary prototype for testing on a sub-orbital flight. Nathalie Breary used planetary models to better understand spacecraft data. In addition, Mekonah Myers interned at Lockheed Martin on a project related to software validation.

Space Grant supported undergraduate students who participated in a CubeSat exhibit at the annual Space Science festival at Intrepid Museum. MEC students also mentor K-12 students in Computer Science; MEC was recently awarded a Tides Foundation Google Community award to work with middle and high school students on MEC’s BalloonSat program.

Prof. Shermane Austin, MEC’s NY Space Grant affiliate director, was one of the invited keynote speakers for the National Society of Black Engineers (NSBE) Aerospace Systems conference in August 2016. She presented on CubeSat student experiences. Other keynote speakers were NASA Administrator Charles Bolden, NASA engineers, and aerospace engineers from industry.  

—Shermane Austin
Increasing Under-represented Students in STEM Grad Pipeline

The Louis Stokes Alliance for Minority Participation (LSAMP) at Stony Brook University (SBU) is a National Science Foundation (NSF) program designed to increase the number of under-represented minority students earning bachelor's degrees in STEM disciplines. With our LSAMP funds and Space Grant funds, we are able to provide about $40,000 per year for undergraduate research placements, which serve as foundational experiences and inspire students to pursue graduate degrees. As a result, almost all participants attend graduate school and around 40% enter doctoral programs—impressive numbers.

This past year, we learned that former award recipient Dr. Tiffany Kataria is a research fellow in the Department of Physics and Astronomy at the University of Essex. In May, Dr. Michael Schied earned his PhD in neuroscience from Northwestern University and is currently employed in Dallas with a pharmaceutical company. Erica Graham is entering her third year of doctoral studies at the SUNY Poly Colleges of Nanoscale Science and Engineering. Among the SBU NYSG/LSAMP students who graduated this May, Steven Leo will be enrolled in the MS in Mechanical Engineering at SBU, Fernando Torales-Acosta is starting PhD studies in Physics at UC Berkley, and Kevin Gonzalez has accepted a position as service engineer with Orbit industrial products. Of our students still on campus, Jessica Flores took a summer position at CERN and the Large Hadron Collider, and McKingsley Williams investigated the use of methane fuel cells in SBU’s Department of Material Sciences. Stony Brook also hosted two young women from Nassau County Community College who came to us through the CUNY York College NYSG’s Community College Partnership Program. —Paul Siegel

Developing Advanced Arrays

University of Rochester (UR) graduate students Meghan Dorn and Mario Cabrera were supported by NY Space Grant this past year. Both students are working on infrared detector array development.

Meghan is our senior student, entering her last year as a graduate student in the fall. She has played a pivotal role in development of arrays for our proposed NEOCam (Near-Earth Object Camera) experiment; we are currently awaiting results of our Step 2 proposal to NASA’s Discovery Program. The principal investigator (PI) of NEOCam, Amy Mainzer (JPL), has learned to rely on Meghan to supply needed information on the detectors. We worked with Teledyne Imaging Sensors to successfully produce excellent hybrid 2k x 2k arrays, in time for the Step 2 proposal, which will enable NEOCam to operate with four arrays populating the focal plane, instead of the sixteen arrays needed in the original proposal using 1k x 1k arrays. Another milestone in the project this year is that we completed proton testing of 3 arrays with different CdZnTe substrate levels. The full substrate array exhibited luminescence current under proton irradiation, but the other two did not. The difficult task of fully removing substrate successfully is therefore shown to be unnecessary for (CONT'D)
NEOCam. Meghan’s paper on this was recently published in the new SPIE Journal of Astronomical Telescopes, Instruments, and Systems.

Mario is entering his third year of graduate school and has become a second infrared detector array expert in UR's infrared group. He is concentrating on a new program to extend the wavelength of the HgCdTe arrays. These arrays would be critically important for exoplanet studies (research on planets orbiting stars outside our solar system). To date, the few arrays produced and tested are excellent. Mario is now engaging in the hard work of diagnosing the properties of the few high dark current pixels in order to understand the physics of these arrays. Mario will attend the October DPS meeting in Pasadena, where he and faculty member Bill Forrest, PI of this project, will present a poster on the long wave work.

Mario and Meghan have been working together on the NEOCam arrays, and Mario has reduced some of the experimental data for that program as well. In addition, our lab is working with colleagues at Harris, RIT, and the UR engineering department to develop THz CMOS detector arrays. —Judith Pipher

below: Meghan Dorn and Mario Cabrera.

YORK COLLEGE

Engaging Community College Students

The NYSG Community College Partnership Program (NYSG CCPP), a NASA-awarded two-year project, is nearing completion. NYSG CCPP engaged diverse students and faculty in its mission to increase the number of CC and technical school students completing their degrees and/or transferring to four-year colleges, particularly from groups underrepresented in STEM. Our objectives are to engage students in—and appropriately train them for—research in areas relevant to NASA.

We were extremely satisfied with the improved recruitment process in Year 2, which garnered excellent representation of women and minority applicants. Women made up nearly 40% of the applicant pool and more than half of the awardees. Nearly half of the applicants and over two-thirds of the awardees were from groups underrepresented in STEM. Fourteen of the twenty-five NYSG CCPP Year 2 fellows have received their degrees and/or transferred to a four-year college, as have thirteen fellows from Year 1. One of the Year 2 students enrolled in a summer engineering course at Cornell, and the rest engaged in mentored research experiences this summer. Students went to GISS-run projects in Manhattan, Norfolk State, Berkeley, and NYSG affiliates including Stony Brook University, Moog Inc., and Lockheed Martin.

Deja Robinson (Corning CC) earned an extremely competitive internship with our NYSG industrial partner Moog Inc. She created a new communication process between design engineers and the failure analysis team. There is no common document or process for Moog’s failure analysis team to report their findings, and Deja’s new process avoids the frequent duplicate failures on projects. She also learned new programming languages for computation and various modeling software. She enters NYSG affiliate Clarkson University in the fall.

Dominika Palinko (BMCC) started research (CONT’D)
in the spring with Dr. Minor on gravitational lensing simulations. She obtained a very competitive and unique multidisciplinary mathematical physics internship at UC Berkeley for the summer at the Mathematical Sciences Research Institute. The research project, titled “Sandpile Groups,” lies at the “intersection of group theory, combinatorics, linear algebra, and algebraic geometry” (Dr. Garcia-Puente, Sam Houston State). Working in the python-like Sage language, Dominika said the skills she learned in the CCPP MSR course at AMNH were helpful. She will attend Berkeley in the fall.

Sarah Pascall (Onondaga CC) spent the summer at NJSG affiliate Stevens Institute of Technology through the GISS initiative, working with Professors Miles and Thangam on a robotics project. She mapped out an extensive 8-week project plan for the creation and execution of an autonomous, light-sensing, obstacle-avoiding robot. She conceptualized four alternative designs and brought the most effective design to life by cutting out the robot’s plastic frame, utilizing C++ and an Arduino board for the coding, and soldering the connections for the navigational target light sensors. Her robot won their internal competition among the student teams.

The NYSG CCPP director, Tim Paglione from CUNY York College, described the program at the National Space Grant Directors’ meeting in Arlington, Virginia last March and will report at the Regional meeting this fall. Much smaller versions of the program will persist through 2018. —Timothy Paglione

Students at the Rochester Institute of Technology are building an attitude control system that works at the temperature of liquid nitrogen. Named Cryogenic Star Tracking Attitude Regulation System (CSTARS), this project is funded by NASA’s Undergraduate Student Instrument Program and gives students a chance to work on cutting-edge instrumentation with NASA. “This project is an extraordinary opportunity,” says Kevin Kruse, the project’s team leader. “CSTARS will be the first star-tracker designed to work at such low temperatures.”

Last spring/summer of 2016, Team Leader Kruse, Project Manager Hyun Won (Bus.Admin.), Elec. Engineer Benjamin Bondor, Mech. Engineers Philip Linden and Chris Pape, Software Engineer Poppy Immel, System Engineer Matthew Delfavero, as well as graduate student mentor Chi Nguyen, faculty mentor Dr. Dorin Patru, and Principal Investigator Dr. Michael Zemcov designed and built the instrument’s cryostat, telescope, electronics, and control software. The first flight of CSTARS is scheduled for December 2016, and some of the team will travel to Wallops Flight Facility in VA to participate in launch operations. In spring 2017, the team will launch a second time as part of a NASA science payload. “This kind of program gives these students important opportunities to work hands-on on a real spaceflight project,” says Dr. Zemcov. If successful, this technology has wide-ranging uses, from new types of spectrometers to cameras for the outer solar system. —Michael Zemcov
Space Grant Fellows Engage in Research and Outreach

above: Kristina Punzi at 2016 Imagine RIT festival.

The NY Space Grant award helps to fund two merit-based graduate student fellowships annually in the Astrophysical Sciences and Technology (AST) Program.

Kristina Punzi, Ph.D. Candidate, Astrophysical Sciences and Technology
My research focuses on trying to understand the process of star and planet formation. Specifically, I am studying X-ray radiation from low-mass stars and its effect on the surrounding environment. This study will constitute the most detailed accounting of X-ray spectral properties and temporal behavior of young M-type stars, which will improve understanding of X-ray emission in relationship to stellar age and mass. In January, I traveled to Kitt Peak National Observatory to observe the variable, infrared-bright, star RZ Psc and its field with the WIYN 0.9 m telescope. This summer, I had the opportunity to mentor two research experiences for undergraduate students and one high school intern to assist in my search for a moving group associated with RZ Psc. In November, I plan to travel to Florence to work with experts at the Arcetri Observatory to exploit data from the Gaia Mission and compile a comprehensive census of young stars near the Sun.

I was also selected by the American Astronomical Society to travel to Washington, D.C. in March 2016 and advocate for astronomical sciences funding. Currently, I am an adjunct professor for an observational astronomy class and have visited a number of K-12 classrooms, science fairs, and science camps, in addition to assisting at open houses at the RIT Observatory. I have also coordinated and designed the Imagine RIT exhibit for my graduate program for the past two years. Our exhibit highlights cutting-edge astronomy research being done at RIT, while teaching basic astronomy concepts in a hands-on, fun, and approachable way.

Brennan Ireland, Ph.D. Candidate, Astrophysical Sciences and Technology
My main interests and research goals pertain to the theoretical modeling of binary black holes (BBHs) with spin during the gravitational wave-driven inspiral of the BBH evolution. This project is computationally expensive and ambitious, requiring the use of local and national supercomputer clusters. This year we published the first results from the analytic model of the BBH spacetime with spin, and this past April, I attended the April APS meeting in Salt Lake City.

The path to an ultimate goal of a simulation of a fully relativistic BBH evolution with spin while accounting for GRMHD is fraught with many challenges but also allows for many opportunities as well. Since the publication of the BBH spacetime, I have been developing an efficient spacetime that can handle the dynamics and spacetime properties of the binary at a fraction of the cost. This allows us to handle even the most generic cases and orbits.

below: Brennan Ireland in the Center for Computational Relativity and Gravitation Supercomputer Lab.
Prof. Heidi Newberg and Dr. Julie Dumas at her Rensselaer graduation ceremony in May 2016.

At Rensselaer Polytechnic Institute, Space Grant supports fellowships for graduate students. Of the last ten fellowship winners to graduate, six went straight to postdoctoral positions, one took a STEM industry position, and three went straight to faculty positions.

Last summer, Space Grant fellow Julie Dumas made history as the 90th black woman ever to earn a Ph.D in physics and the first ever to receive this degree from Rensselaer. Dr. Dumas is now a postdoc at Vanderbilt University, and spends part of her time advising minority students in the Fisk-Vanderbilt Bridge Program. She was awarded a 2016 postdoctoral fellowship from the NSF.

This year, we kept our perfect record of turning out graduates with bright futures. Charles Martin was the recipient of the 2014/2015 Space Grant fellowship, which supported his project “Mapping Milky Way halo structure with blue horizontal branch stars.” As a student in the combined BS/Ph.D program, he graduated with a Ph.D in Physics in August 2016, just seven years after finishing high school. The following week, he started teaching students in the same classrooms where he studied just a few years ago. That was an incredible climb!

—Heidi Newberg

NY Space Grant Affiliate Directors and Institution Locations

Prof. Mason Peck (Director), Cornell University
Prof. David Toot, Alfred University
Prof. Reshmi Mukherjee, Barnard College
Prof. Changhong Ke, Binghamton University
Prof. Susannah Fritton, City College of NY, CUNY
Prof. Daniel Valentine, Clarkson University
Prof. Thomas Balonek, Colgate University
Prof. Marcel Agüeros, Columbia University
Ms. Ellen Silbermann, Intrepid Sea, Air & Space Museum
Mr. Ron Crawford, Lockheed Martin
Prof. Shermane Austin, Medgar Evers College, CUNY
Ms. Camille Flaherty, Moog Inc.
Prof. Vikram Kapila, New York University
Prof. Heidi Newberg, Rensselaer Polytechnic Institute
Prof. Andrew Robinson, Rochester Institute of Technology

Dr. Charles Trautmann, Sciencenter
Mr. Paul Siegel, Stony Brook University
Prof. Aaron Steinhauer, Suny at Geneseo
Prof. Peter Plumley, Syracuse University
Prof. Rebecca Koopmann, Union College
Prof. Jennifer Zirnheld, University at Buffalo
Prof. Judith Pipher, University of Rochester
Mr. Derek Edinger, Ursa Space Systems, Inc.
Prof. Timothy Paglione, York College, CUNY

NASA/NY Space Grant Consortium

http://astro.cornell.edu/spacegrant/