

Space+: Pathways for All Abilities

STARTING FROM GROUND ZERO

EXPERIENCES OF THE FIRST PROFESSOR OF
ASTRONOMY IN ENGLISH-SPEAKING CARIBBEAN

An interview with Shirin Haque
Professor of Astronomy
at the University of the West Indies



The skies have always beckoned and inspired Shirin Haque since she was a child. However, growing up on the island of Trinidad and Tobago, what she heard was often not encouraging - “You can’t study Astronomy in Trinidad”, “You will never get a job with that!”, “What is the use of Astronomy here?”.

Nevertheless, with support from her family and personal grit, Shirin is now the first Professor of Astronomy at the University of the West Indies, a public university serving the 17 English-speaking countries and territories in the Caribbean. Hoping to broaden the reach of astronomy to marginalized groups such as persons with disabilities and children in orphanages, she also co-founded the Caribbean Astronomy for Inclusion (CAI) group and founded the W.I.S.H. (Women In Science for Hope) Foundation.

She is a director of the UWI-NRAO NINE Caribbean hub for radio astronomy (Full name: University of the West Indies National Radio Astronomy Observatory National and International Non-traditional Exchange) which promotes the inclusion of women, and persons of color (BIPOC) from minority-serving institutions.

In this article, Shirin shares her experiences overcoming hurdles to promoting disability inclusion in astronomy in English-speaking Caribbean and discusses what needs to be done to improve the state of disability inclusion in astronomy in the region.

“Astronomy is a truly noble enterprise when looked at in the context of the history of humanity, and no one should be denied pursuing it. Space is where the future is, and we in the Caribbean must be part of that discovery.”

What drew you to the subject of accessibility in astronomy? What makes this issue so important to you?

Shirin: My short answer would be Dr. Wanda Diaz-Merced. She is not only a blind person in astronomy but also a woman in a field where women are underrepresented, and was born here in the Caribbean, where astronomy is low-priority. From her, I heard perspectives that would not have crossed my mind, and I realized, we (able-bodied persons in astronomy) were the ones with shortcomings. That is why this is so important to me. It is almost a guilt I carry due to my own ignorance.

To me, she is a role model. Her enthusiasm, motivation, and energy as a blind astronomer, are an inspiration to anyone. I have found her ability to focus on her goals and achieve what she puts her mind to just totally inspiring.

" When it comes to disability awareness and inclusion in the field of astronomy, we are starting from ground zero."

In your paper about the Caribbean Astronomy for Inclusion (CAI) Initiative, you mentioned in the Caribbean, "the population with disabilities is large, with high rates of unemployment. The main objective of CAI is this population, even in the earliest stages of education. We are looking to provide accessible resources for the students with disabilities and reduce the gap that already exists in the professional field of Astronomy in our region, the Caribbean." Could you elaborate on the history and objective of the initiative, given the socio-economic context of the Caribbean?

Shirin: The Caribbean is a multi-faceted region, both geographically and culturally. I prefer to speak solely about the English-speaking Caribbean where I did most of my work. When it comes to disability awareness and inclusion



The national committee for the IAU ExoWorld naming Competition 2019, chaired by Prof. Shirin Haque with the winner, Dr. Jo Anne Ferreira at centre with the award of a telescope. Photo credit: Renee Lopez

in the field of astronomy, we are starting from ground zero.

Two years of covid protocols and regulations had even worsened the situation. There has been no prior initiative in Astronomy for persons with disabilities. Persons with disabilities mainly learn crafts and are largely underemployed. We are making inroads and I am hoping to engage the communities, and introduce them to astronomy. For example, a unit on disability was established at the University of the West Indies but the number of students who graduate from sciences being deaf or blind is close to none. Only one blind student graduated from computer science in the decades I have been working with the faculty and one student was wheelchair-bound. This suggests that a lack of support and infrastructure may be a deterrent for persons with disabilities.

The CAI initiative took off thanks to Dr. Wanda Diaz-Merced, as she was critical in introducing several of us astronomers from the Caribbean. Currently, I am the only professional astronomer in the English-speaking Caribbean. An entire community had been marginalized and cut off from astronomy simply because of a language barrier, or preconceptions about persons with disabilities, so the CAI group was born with a handful of us from the region to address this gap.

"My hope is that these projects and tools will allow persons with disabilities to experience, and get excited by astronomy in a way they traditionally could not."

Tell us about your involvement in the CAI initiative.

Shirin: The members of the CAI initiative work in different realms of outreach. We are responsible for our part of the Caribbean and for me, it started with gauging the status of access to astronomy among the blind and in Trinidad and Tobago. Any communication we had with them to gauge their interest was accompanied by great excitement. We began developing tools and educating ourselves. I have astronomy posters in braille, devices that can convert light into sound, and I recently got a tactile 3D-printed moon to bring the experience of the moon to visually impaired persons. Some members are learning sign language as well.

Some members have been involved with Light Sound and Orchestra. LightSound has been used to experience eclipses. Orchestar is a wonderful device, used to turn light into sound and even perceive color. Dr. Wanda Diaz-Merced delivered us a CARDIS device, which is used for learning coordinate systems by touch and even aligning telescopes. But due to logistic problems, we never received it. This is an example of how sometimes in the Caribbean the logistics of getting things done

really slow us down. My students ended up building a CARDIS recently and we plan to use it soon.

This kind of community outreach received a very warm response and support from the locals, persons in the blind community are especially excited by the prospects.

My hope is that these projects and tools will allow persons with disabilities to experience, and get excited by Astronomy in a way they traditionally could not.

Because I myself do not have any disability it has been a learning curve to train myself to communicate with persons with disability and understand their circumstances. While progress has been slow, the journey has just begun.

Part of the project focused on developing materials for educational purposes. What do you think educators can do to promote interest in space among persons with disabilities and mainstream the idea of disability in space? Do you have specific advice for teachers in astronomy and other scientific fields working with students with special needs?

Shirin: Mainstream schools in Trinidad and Tobago do not cater to persons with disabilities. Therefore persons with disabilities are cut off from the mainstream experiences in Science and have limited employment opportunities. Future plans involve engaging with the communities in a long-term manner, creating workshops and programs, and expanding into the other islands. We also plan to create a dictionary of astronomy terms for sign language. Our long-term goal is to mainstream the idea of disability in space. The journey of a thousand miles begins with a single step and I am glad that we have begun, albeit with baby steps. We have to educate teachers on how to reach out to students with disabilities.



Prof. Shirin Haque on an astrobiology field work expedition at the mud volcanoes in Trinidad with colleagues.
Photo credit: Enoredia Baptist

"Because I myself do not have any disability it has been a learning curve to train myself to communicate with persons with disability and understand their circumstances."

CAI is supporting the production of an astronomy book for persons with disabilities. What did you learn in the process?

Shirin: CAI is supporting the production of an astronomy book authored by Dr. Wanda Diaz-Merced. We acted as a support system, checking the chapters for feedback, readability, and understandability. It made me realize how easy it can be to take things for granted when you don't have a disability. Sometimes conventional tools like braille are not enough. It's crucial to find creative solutions. As part of the CAI team, our approach has been two-pronged. One is training ourselves and becoming aware of the difficulty of navigating astronomy for persons with disabilities. The other is reaching out to them. We have been arranging seminars to educate ourselves and the public and co-authored a couple of papers on Astronomy education and disability in the Caribbean region.



Prof. Shirin Haque with her undergraduate research Physics students on a radio astronomy project. Photo courtesy: Shirin Haque

I understand you were involved in the Workshop on Astronomy Beyond the Common Senses for Accessibility and Inclusion. Could you tell us about the objective and impact of this workshop?

Shirin: This was our "coming out" workshop. Announcing who we are and what we aim to do for inclusion in the Caribbean. The workshop has given us visibility and more people have been in touch with us as a result.

Based on your personal experience, what challenges do you face in promoting accessibility in astronomy in Trinidad and Tobago and/or the Caribbean in general?

Shirin: Insufficient funding, infrastructure, awareness, resources, and public education are the main challenges.

Before launching the CAI project, I was a volunteer assistant in a school for children with disabilities in Trinidad. Right away, I was taken aback at how few teachers were professionally trained to help children with disabilities. Sometimes it looked more like the children were just being babysat, and not as much taught or stimulated. In this case, I would say the challenge lays in the lack of experts and specialists, even in environments that are dedicated to persons with disabilities.

When we first reached out to the blind community, one of the first challenges was communication and outreach. For example, we could not find demographic data on the number, gender, and age of visually impaired persons, which made it harder to establish direct communication.

My impression is that persons with disabilities in Trinidad and Tobago operate in silos and are not totally integrated into mainstream society. I witnessed another example of a lack of awareness and inclusion when I visited an office that catered to blind persons. I was really taken aback to see that flyers with directions to the office were merely photocopies in English with Braille-printed images and were not tactile.

"To students with disabilities, who want to study astronomy I say - get in touch with groups like ours and we will take your hand and show you the way. never give up or stop believing you are capable for astronomy."

Although I've made some headway recently, we need to create a communication pathway to reach out. I have also been asked to chair a panel dealing with disabilities and STEM fields at a local conference in Trinidad. As part of the one-day conference on persons with disabilities at the University of the West Indies, I will present a panel discussion on outreach to persons with disabilities in Astronomy.

What do you think needs to be done to address those challenges? How do you think various stakeholders can support disability inclusion in astronomy in the Caribbean?

Shirin: There are not enough champions fighting for equity for persons with disabilities. It is important that in the Caribbean, more visible organizations become part of this movement. This can only happen with education and communication on the subject of inclusivity among all the stakeholders.

While right now accessibility in astronomy is limited, do you see a future where persons with disabilities can experience astronomy in a multi-sensorial way? Are new tools likely to change work environments in the future, making astronomy more inclusive and accessible?

Shirin: Lots of inroads are being made in multi-sensorial astronomy. Our job is to take these new tools and methods to the communities. Historically, access to astronomy relied on braille and tactile items but today, instruments like LightSound and Orchestar have increased the spectrum of what is possible for them to experience. For example, text-to-voice has made communications so much more feasible

between the blind and seeing persons, as visually impaired persons, are now able to send texts and voice notes unaided. Moreover, we can listen to galaxies and stars and I think it is just wonderful. Things are slowly heading in the right direction and reaching the destination is what counts!

As an able-bodied person working in the field of outer space, how do you foster a more inclusive environment, be it in scientific research, education and outreach, or in the workplace? How would you encourage other people build an inclusive environment?

Shirin: Creating the CAI group, fostering students' projects on the issue, holding talks and seminars, and even this interview are all part of the journey. It is easier to implement accessibility and access to resources if everyone is sensitized to the issue.

In my outreach activities in schools, I carry my astronomy braille posters and encourage students to close their eyes and experience it by touch, to sensitize them to non-traditional ways of learning.

Do you have any practical pieces of advice to persons with disabilities who want to study or work in astronomy in the Caribbean?

Shirin: Persons with disabilities should reach out to the existing clubs and academics who practice in the area. Part of the problem is a screen of separation between "them" and "us", and sometimes we are not even aware of persons with disabilities who are interested in Astronomy. They on the other hand are unaware of opportunities. This is the cycle we are working on breaking.

To students with disabilities, who want to study astronomy I say - get in touch with groups like ours and we will take your hand and show you the way. Never give up or stop believing you are capable for astronomy.

What are your plans for the future?

Shirin: My hope is that this project will become a well-oiled machine where we can regularly engage with persons with disabilities and eventually see student interest grow in studying astronomy. It is also my dream to take

this project to the rest of the English-speaking Caribbean. It would be great to see that happen!

Prof. Shirin Haque, with the president of Trinidad and Tobago Hon. Paula Mae-Weekes receiving the highest science Caribbean Award (Anthony N. Sabga Caribbean Award for Excellence). Photo credit: Raymond Ramcharitar



BIO

Shirin Haque is a Professor of Astronomy at the University of the West Indies. Formerly Deputy Dean and Head of the department in the Faculty of Science and Technology, her areas of research include observational astronomy, cosmology, and astrobiology. Additionally, her successful background in astronomy is enriched by an MPhil in Psychology. Prof. Haque is a fellow of the Royal Astronomical Society, the first woman to receive the CARICOM Science Award, and is the 2020 laureate of the Anthony N. Sabga Caribbean Award for Excellence in Science and Technology. Moreover, she is the recipient of nine local, regional and international teaching and Science research awards. Prof. Shirin Haque has done considerable work in the field of inclusion in astronomy. She is Co-founder of Caribbean Astronomy for Inclusion (CAI) group, the director of the UWI-NRAO NINE Caribbean hub for radio astronomy and the CEO/ founder of the W.I.S.H. (Women In Science for Hope) Foundation. In addition to producing Caribbean Science documentaries, she has also produced two television series about Science, as well as several science magazines for adults and children.

RESOURCES

- [CAI YouTube channel](#)
- [CAI facebook group](#)

CONTACT



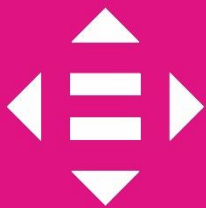
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[Shirin Haque's Youtube Channel](#)

10 REDUCED INEQUALITIES



ABOUT

This article is part of the “Space+: Pathways for All Abilities” interview series under the United Nations Office for Outer Space Affairs Space for Persons with Disabilities project. The aim of this interview series is to raise awareness of the importance of disability inclusion and to advance inclusive and equitable development in the space sector through sharing the experiences of and lessons from disability advocates and persons with disabilities in space.

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