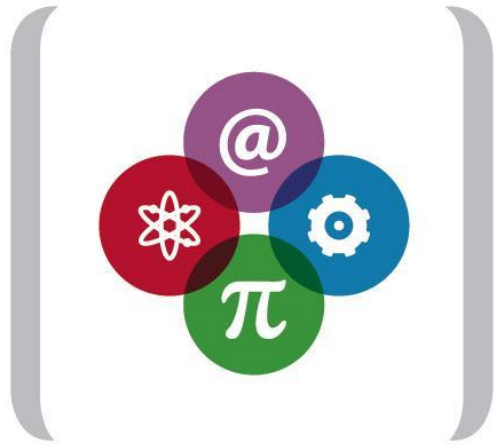


PS 154

Visiting Scientist Day

May 24th, 2018



Science Technology Engineering Math

Professional Biographies

Welcome to the third annual PS 154 Visiting Scientist Day! We are excited to welcome all of the amazing science professionals you will meet in our MMR. They represent some of the most important and interesting work in Science, Technology, Engineering, and Mathematics.

To prepare for Visiting Scientist Day, please read through the bios in this booklet to learn about each of our guests. Then pick 6 people you would like to meet. Try to choose at least one person in each S.T.E.M. area. You can use the chart on the next page to help you decide whom you might like to talk with. Once you've chosen, use the interview sheet to write one or two great questions for each person you will meet. Remember, great questions get great answers so use "wh" questions (who, what, when, where, why) rather than "yes or no" questions. For example, rather than asking, "Do you like

your job?” ask, “What do you like about your job?” Or, rather than asking, “Was college helpful for you to get a job?” ask “What did you study in college that helped you get your job?”

At the event, your teachers will let you know which STEM professionals you will meet. Your job is to ask your questions, and record their answers. After the event we will ask you to choose which conversation with a STEM professional was most meaningful to you and to write that person a quick thank you note.

We hope you enjoy Visiting Scientist Day!

--PS 154 Science Committee

If you are Interested in:	Talk to:
Computers	
Computers	Frank Ventura
Computer Animation	Ivan Guerrero
Computer Programing	Andre Lebedev
Coding	Brent Lagerman
Biology Research	
Biology	Carol Prives
Neuroscience	Shadi Jafari
Molecular Biology	Rutt Taba
Genetics	Christine Ponder
Medicine	
Statistics	Jayanti Mukherjee
Physician	Jill Swenson
Chemistry	
Chemistry Research	Swati Jain
Chemistry/Art Restoration	Tina March
Archeology/Old Stuff	
Archeology	Roberto Herrera
Archeology	Tom Amorosi
Physics/Engineering	
Astronomy	Mehmet Alpaslan
Mechanical Engineering	Shramana Ghosh
Civil Engineering	John Lynch

Frank Ventura - Computers

Frank’s love for taking things apart (and not always putting them back together), solving puzzles and playing with gadgets led him to a career in technology that has spanned more than twenty years. For the past sixteen years, Frank and his brother have led an Information Technology (IT) company that works with non-profit organizations around the world. Frank and his staff of computer engineers spend their days fixing computer problems, helping companies build new tech-ready offices, battling hackers who want to steal information and advising people on how to use technology to do their jobs

better. When not working, Frank likes spending time with his family, building things, learning to play guitar and riding his bike.

Ivan Guerrero Computer Animator

Ivan Guerrero grew up in Venezuela and outside of Boston, MA. He went to Vassar College, where he studied biology then he worked at Children's Hospital in Boston on the Human Genome Project before beginning a Ph.D. in molecular biology at the University of Colorado. Halfway through, he rediscovered his childhood love for movie magic, and changed his course of study to computer animation.

Since 2005, Ivan has worked as a visual effects technical director for movies and commercials. He uses high-end 3D software to create special effects like explosions, large crowds, furry creatures, animated characters, and imaginary places. Some of the movies he has worked on the past few years include *The Barbie Diaries*, *The Smurfs*, *The Secret Life of Walter Mitty*, *I Am Legend*, and *Dark Universe*, currently playing at the Hayden Planetarium at The American Museum of Natural History.

Andre Lebedev -Physicist/Technology, Google

I studied physics at University of Virginia and then earned a Ph.D. in physics at Harvard. Physics is the branch of science concerned with the nature and properties of matter and energy. This includes mechanics, heat, light and other radiation, sound, electricity, magnetism, and the structure of atoms. I conducted an experiment at Fermi National Accelerator Lab using a giant machine called a Particle Accelerator to collide particles (particles are the smallest unit of a substance) with matter like carbon, hydrogen and lead to study how they interact. In other words, I got to smash subatomic particles together at insanely fast speeds to unravel the mysteries of the universe! Eight years ago I joined Google and I am currently working on improving the data of businesses, schools, and other points of interest visible on Google Maps.

Brent Lagerman - Web Designer & developer

Brent got into web technology and programming by accident. He came to NYC to be a filmmaker just as the dot-com boom was happening. The indie film scene in New York City was extremely hard to break into, but startup tech firms were hiring left and right! Even though he had no coding experience he convinced a small web technology shop in the financial district to hire him, saying he could start in a week. After a long week of no sleep, reading manuals, and doing online research, Brent started his new job the rest is history.

In 2003 Brent and his wife Teresa started their own small digital design firm that grew and evolved over the years to become condensed.io, a Brooklyn-based brand agency for startups. The condensed team brought top-level talent and experience from larger Manhattan agencies to work with smaller startups in Brooklyn. They have branded and created the digital presence for dozens of successful startups and more are on the way.

Carol Prives

Professor, Biological Sciences, Columbia University

Carol Prives is molecular biologist (which means she studies how DNA, RNA and proteins are made) and a cell biologist (which means that she looks at cells under a microscope.) She became interested in science from reading her father's science fiction books and magazines. In high school she had a really great biology teacher who made every class as much fun and interesting as going to a good movie. After graduating from college she decided to go on to get a PhD then went to work in a very good lab in New York at Albert Einstein College of Medicine where there was a lot of really exciting research going on about viruses and how they infect cells, animals and people.

Now she works Columbia University in New York where she does research and teaches molecular biology. She has a laboratory where 12 people work with her to study cancer by working on a specific protein called p53 which is very important because it protects cells from turning into cancer cells.

Shadi Jafari - Neuroscientists

I was born and grew up in Tehran, Iran. Both my parents only went to primary school. My mom was taken out of the school because she was a girl and her parents believed education was sinful for women. My dad lost his father, so he had to drop the school and start working to provide for his family. My mom was so upset about not being able to study that she did everything that she could to let me study. I always had the best grades in the school. At first, I studied medicine and became a doctor. But I wanted to discover new things and be the first to know those things. So, I moved to Sweden and studied biology and became a researcher. Now I study the fruit flies brains. Although fruit flies are much smaller than us, it's brain is very similar to our brain. I hope I can learn new things about our brain by studying fruit fly's brain.

Rutt Taba – Molecular Biologist

My name is Rutt Taba, I have been a molecular biologist for 15 years. I grew up on a farm in Estonia and nature has always been a large part of my life. Deciding to study biology at The University of Tartu was a natural choice after high school. I specialized in molecular biology and genetics during my Bachelor studies and completed Master of Science in molecular and cell biology. My professional career started as a researcher focusing on stem cell research and creating primary skin cell cultures from the patient skin. Then I moved on to the whole-genome sequencing of human, cow and bull genomes i.e. determining the order of “letters” of DNA. I was also responsible for developing methods to best assess the quality of lab-produced cow embryos. At the moment I am working in the Department of Pathology and Cell Biology at Columbia University Medical Center. My responsibilities include validation of candidate genes and mutations in essential tremor research.

Christine Ponder – Geneticist

When I started college I thought I would go to medical school, until I got a job in a research lab at the University of Arizona. I loved the work I did in the lab, like asking a question, designing an experiment

to disprove a hypothesis, and discovering things no one else knew about the world. I then came to New York City to do a PhD in genetics at Columbia University.

Genetics is the scientific study of the ways characteristics and traits of living things, such as hair color, eye color, or risk for disease are passed from one generation to the next. I was particularly interested in how genetics affect behavior so I spent five years looking at the genetic differences between mice that show a lot of fear and mice that don't show very much fear. The genes we identified in mice have similar versions in humans, so they may influence why some people have anxiety disorders. Now I have a job that lets help lots of other scientists who do research at New York University.

Jayanti Mukherjee – Health economics and statistics

I have a Master's Degree in Chemistry from the Indian Institute of Technology and a Ph.D. in Statistics from the University of Waterloo. I started my career as a statistician working on a study of a type of surgery that was thought to prevent strokes. Following this I moved to the pharmaceutical industry where I continued to take on new challenges and responsibilities, first in statistics and then in health economics. Health economics is the study of how to use resources effectively in healthcare. I was a major contributor to guidelines used in Canada to decide if new drugs benefit patients and are cost effective compared to others. This is called "Outcomes Research" and is important because people are worried about increasing healthcare costs.

Currently, I am the Group Director of Health Economics and Outcomes Research at Bristol-Myers Squibb, which makes drugs for many diseases. I have presented my research findings at scientific meetings such as the International AIDS Society as well as published in high quality medical journals.

Jill Swenson – Physician

Jill Swenson is from Brooklyn, NY. Her love of science began in the 5th grade after dissecting a fetal pig in science class....that's right - a PIG! Since then, she devoured any scientific material she could find. She decided to major in Biology in college. After volunteering at a hospital, she decided her heart was set on medicine and perused the long road through 4 years of medical school and an additional 4 years of residency. She currently practices Obstetrics and Gynecology where she delivers babies and performs many different types of surgery on women through out all aspects of their life.

Swati Jain – Chemistry

I work as a Postdoctoral Associate in the Chemistry department at New York University. I study structures of biomolecules like RNA and develop methods to modify them. I moved to New York from Durham, North Carolina in October 2015 after completing my PhD in Computational Biology and Bioinformatics from Duke University. I am from India and moved to the US in 2008 to pursue by PhD. What excites me about Science is that it gives us the opportunity to understand and appreciate the natural world and how we can apply the "scientific method" in our daily lives. I also like to read, travel, dance, and paint.

Tina March - Art Conservation, Brooklyn Museum

Hello. I am an art conservator at the Brooklyn Museum. An art conservator is like an art doctor; when the artwork breaks, an art conservator fixes it. A lot of my time is spent ensuring the artwork is well cared for and handled properly to prevent it from breaking in the first place. But, when an accident happens, the first step in fixing the artwork is to understand how the artwork was originally made. I use different scientific techniques to help determine what materials the artwork is made from, or how old it might be, and I use that knowledge to make the best decision on how to restore the artwork. I have restored everything from Japanese armor to Donald Judd copper boxes to ceramic bowls, but her favorite things to work on are Ancient Egyptian objects – especially the mummies. I have worked on archaeological excavations as a site conservator in Egypt, Turkey and Iceland.

Roberto Herrera - Archaeologist

As an archaeologist, I use a combination of methods to study how people behaved in the past. This involves using math to set up excavations, create maps and predict where things like bones, stone tools, pottery or even whole villages might be located. It also involves earth science to understand what type of materials certain objects are made of as well as explaining how things came to be buried. I also examine how things may have moved around *after* being buried and discover how old they are by interpreting chemical and atomic analyses.

So archaeology is sort of the Swiss army knife of science as we have to know a good deal about many things. Archaeologists can work out in the field digging and exploring or work in laboratories or museums. I do a combination of field and indoor work and have worked as an archaeologist for over 10 years on projects in and around New Mexico, New York, the Caribbean and central America. I currently work for an engineering company making sure builders don't accidentally destroy important history and I lecture on ancient central American cultures.

Tom Amorosi - Archeology

Have you ever watched the TV shows “CSI” or “Bones”? Did you ever find a bone in the park or your backyard? Dr. Amorosi is the scientist who can tell you what that bone is. Usually Dr. Amorosi works with human and animal bone remains found at crime scenes or from archaeological and paleontological sites. Dr. Amorosi has also lead archaeological excavations in Alaska, Iceland, New York State and even here in New York City, studied the first people of southern South America just after the Ice Age, the paleobiology of Native American dogs and a very odd looking set of fish known as Sturgeons.

He knew he wanted to do this from a very early age. During his last two high school years he interned in the Anthropology Department, at the American Museum of Natural History. Afterwards he went to Hunter College to study Anthropology, Biological Anthropology and Archaeology as well as study Fine Art and Illustration then he earned a his Masters Degrees and a Ph.D. In addition to his research, Dr. Amorosi teaches at the college and graduate levels at the Division of Anthropology, American Museum of Natural History and the Department of Anthropology at SUNY-New Paltz.

Mehmet Alpaslan – Astrophysics

Mehmet Alpaslan is an astrophysicist at New York University, where he studies the biggest structures in the Universe. Using data taken from telescopes around the world, Mehmet uses mathematical and statistical programming to construct detailed 3D maps of the nearby Universe which contain tens of thousands of galaxies and measure billions of light years across. By studying how galaxies are influenced by their neighbors, Mehmet and his colleagues are trying to understand the physics of how galaxies form and evolve, as well as unlock the mysteries of dark matter. Originally from Turkey, Mehmet's career in astronomy has taken him to the UK, Australia, and California before bringing him to New York last year.

Shramana Ghosh – Mechanical Engineer

NYU post-doctoral researcher, Dr. Shramana Ghosh received her doctoral degree in Mechanical Engineering from University of California, Irvine in 2017. Her doctoral work focused on designing simple and robust robotic assistive devices to help people with disabilities walk. Currently, she works on development of data-driven and biologically-inspired interactive interfaces for upper-body rehabilitation devices.

She is passionate about education and works with teachers and students in NYC public schools to introduce robotics into middle school STEM classes. In her spare time, she enjoys reading, sketching and taking long walks. She was born and raised in New Delhi, India, and moved to the United States for graduate school, and visits India often.

John Lynch - Civil Engineering

John is a civil engineer that works for HNTB Corporation, an engineering consulting firm with 4,000 employees in offices across the nation. He has over 27 years of experience working on the design, construction and management of projects in the NYC area. Previously, John worked for the Port Authority of NY & NJ. Some signature projects he has worked on include rebuilding the World Trade Center site, new Terminal Buildings at JFK Airport and Newark Liberty Airport, the Storm Mitigation and Resilience program to rebuild and protect facilities after SuperStorm Sandy, and the Second Avenue Subway project in New York City. He has a BS in Civil Engineering from Columbia University, an MBA from Hofstra University and is a Professional Engineer in New York. He likes his job because he gets to first work on drawings on his computer that are then constructed in real-life, and these are things that help people move from place to place.