

The NICHD Connection

September 2016

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Virtual Reality as a Tool for Scientific Research

By Jeremy Swan

After years of hype and expensive, underperforming attempts to provide Virtual Reality (VR), it is now *reality*! A newly formed Virtual Reality Interest Group (VARIG) meets monthly at the NIH and aims to empower the scientific community to use the readily available technology for research. But how can researchers use it, and what's in the future? Let's dive in and take a look:

THE HISTORY OF VIRTUAL REALITY

Stereo viewers—devices that create a three-dimensional (3D) image by providing separate images to the left and right eyes—have existed for hundreds of years. Kinematoscopes and other stereo movie and photo viewers were a staple at nickelodeons and circuses at the turn of the 20th century. Maybe more familiar, the child's View-Master® has rattled around toy boxes for 75 years.

The images in those devices have always been static, unable to move with the viewer. When the peripheral vision is completely filled and moves fluidly with motion, a powerful sense of immersion in the environment is created. Because of this sense of immersion, the military has employed Virtual Reality dating back to the Cold War. Most extensively, it has been used for training and simulations, but also for piloting. Helicopters like the Blackhawk don't even have a window and rely entirely on a combination of virtual and augmented reality to navigate the craft. Industries have also employed VR in the design process, for example testing prototypes of cars before investing time and materials in construction.



Using the nVisor at NHGRI's IVETA facility

NIH scientists have used VR for over a decade. The reason for recent excitement is that high quality VR is now affordable. Consumer models work well and are available for less than \$1,000. For biomedical research, the applications are many.

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Letter from the Editor

Have you ever heard someone use the word “virtual” in conversation? It usually goes something like “She virtually dumped him at the party” or “I’m virtually done with my PhD thesis.” While the use of the word is innocent enough, soon sentences like these may be downright confusing. Why? Because virtual reality has gone from a cute sci-fi storyline to an advancing technology in the hands of consumers.

For our feature article this month, Jeremy Swan argues that virtual reality may be the next big thing for biomedical research. Several NIH faculty already employ the technology, and our very own NICHD fellows and investigators are visualizing complex three dimensional datasets using Virtual Reality-based methods. If your interests are piqued, check out Jeremy’s article ([page 1](#)) and consider visiting the Virtual Reality booth at the upcoming NIH Research Festival, September 14-16.

While at the festival, don’t forget to check out our many NICHD posters, including some who received the 2017 Fellows Award for Research Excellence ([page 9](#)). Maybe you could put their science speaking skills to the test. If you don’t know what constitutes a good scientific talk, Dr. Pushpanathan Muthurulan provides a nice [recap of August’s “Speaking About Science” workshop](#), led by the popular Scott Morgan.

And of course, please don’t forget to check out the many [September announcements](#) and [events](#), including several save-the-dates for upcoming workshops. Okay, I’m virtually done with this letter.

Your Editor in Chief,
Shana R. Spindler, PhD

Please send your questions and comments to Shana.Spindler@gmail.com.

Virtual Reality

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THE IMMERSIVE VIRTUAL ENVIRONMENT TESTING AREA

Dr. Susan Persky from NHGRI (perskys@mail.nih.gov) helped to launch “IVETA”—the Immersive Virtual Environment Testing Area—in 2007. This lab’s primary purpose is to serve the Social and Behavioral Research Branch within NHGRI. While the lab doesn’t provide service to the larger NIH community, they sometimes collaborate with other groups, including labs in NIDA, NIAAA, and NIMHD. The research facility began actively recruiting and conducting research with study participants nine years ago.

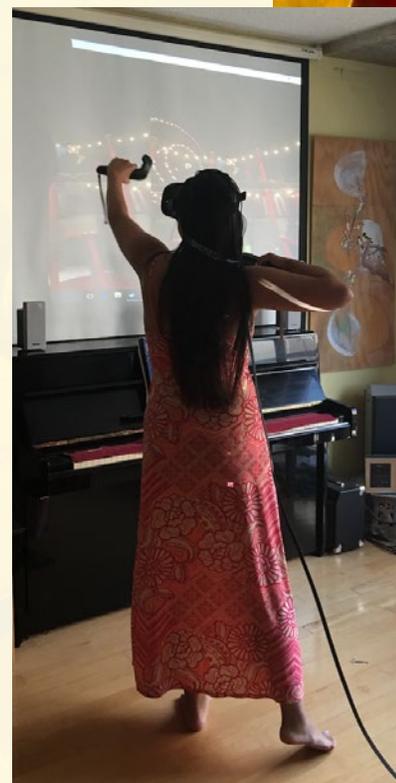
The facility features an eight-camera position tracking system for tracking motion in a walkable space. They currently use nVisor and Sony Head Mounted Displays (see [pages 5-6](#) for specific VR hardware information), but will transition to the HTC Vive in the near future. The group plans to test the Oculus Rift for travelling to remote sites, such as medical centers.

One interesting use for VR includes the simulation of a clinical environment to study doctor/patient interactions or teach and test medical students in a virtual clinic. Researchers have absolute control over every aspect of visual and auditory stimuli. The scene can be reset exactly after each session, and researchers can change specific variables to test their influence on the encounter, such as a virtual physician’s skin color or a virtual patient’s word phrasing.

Another feature of the technology is the ability to collect precise movement parameters like gaze tracking and interpersonal distance. One of the lab’s studies involves a virtual buffet to study food choice. Parents might be asked to select foods from the buffet to serve their children. How might decisions be influenced by surroundings? By working with this technology, the group can design research environments that isolate the variables they want to study, yet look and feel realistic to research participants.

FROM BENCH TO BEDSIDE

The speed at which VR has developed can prove both challenging and exciting. New graphics cards, games, applications, and platforms allow increasingly realistic physics simulations.



Dr. Sunbin Song's colleagues test the HTC Vive at home and in the Clinical Center

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Virtual Reality (continued from page 3)

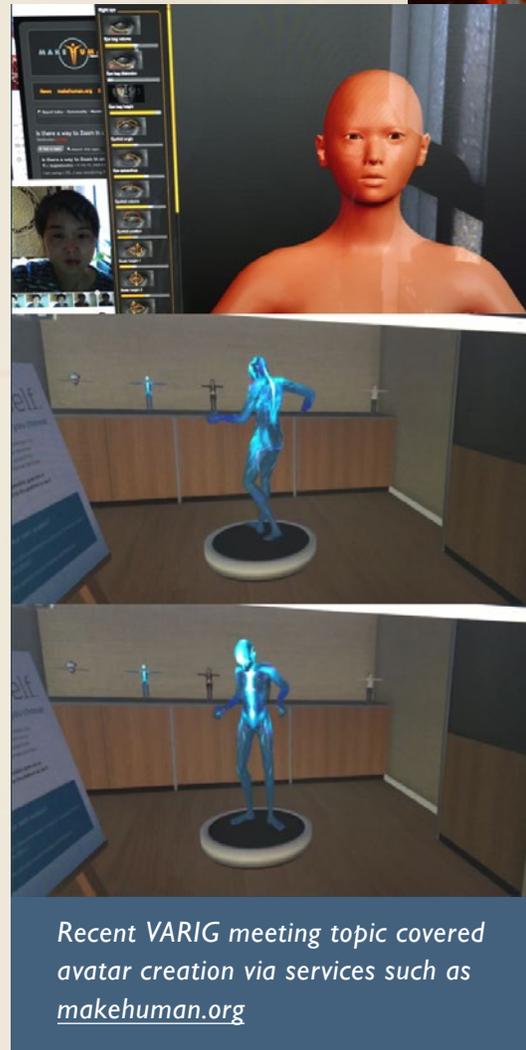
Dr. Sunbin Song, a research fellow from NINDS in the Human Cortical Physiology Section, is familiar with the benefits and challenges of advanced VR. She is utilizing VR to study motor learning and investigate the potential for remote home-based rehabilitation paradigms in a VR environment. Dr. Song began taking content development classes, specifically on the game engine called Unity, led by Dr. John Ostuni. Together, the pair worked to develop a driving simulation task with the Oculus Rift DK2 and a steering wheel. They quickly realized that their application caused motion sickness, switching to a ball-sorting task with the HTC Vive HMD and controllers.

Drs. Song and Ostuni are currently exploring how VR technology can be used for both diagnostic and training purposes. The long-term advantage of using commercial technology is that patients could avoid a hospital setting for physical therapy, allowing for access to physical therapy more often and for longer, as the process would be cheaper and less intensive on limited resources, such as space. Patients and medical professionals separated by long distances could interact in virtual space, opening up the possibility of global healthcare.

Looking to the future, Dr. Song is exploring social VR platforms, such as High Fidelity (highfidelity.io), that actively integrate information from sensors for tracking facial expressions and other information to animate avatars in real time. These tools can allow not only for more realistic person-to-person interaction, but may also be used to create a feedback-controlled regulation of the VR environment in rehabilitation paradigms. Also, researchers have the option to measure other characteristics, such as galvanic skin response, blood pressure, or heart rate. The researcher only needs to build the functions into the application and environment.

COMPLEX 3D DATASETS

A unique and interesting use of Virtual Reality is for exploring complex 3D datasets. Dr. Damian Dalle Nogare in the lab of Dr. Ajay Chitnis is collaborating with Dr. Harry Burgess to develop a VR environment for visualizing whole brain scans of zebrafish embryos. They decided early on to build on the Google cardboard platform for the most widespread distribution without the need for specialized and expensive hardware.



Recent VARIG meeting topic covered avatar creation via services such as makehuman.org

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VIRTUAL REALITY HARDWARE

Virtual Reality (continued from page 4)

Brain scans are first converted to 3D objects and then imported into Unity3d, which they are using to build the VR Brain Browser. Within the VR environment, users can move around within the brain, examining various structures and how they relate spatially to other structures in the brain. Within this browser, users can turn on or off various brain regions to visualize different regions without leaving the VR space. The relative simplicity of the zebrafish brain allows an observer, for example, to visualize in 3D space how the optic nerve connects to the optic tectum. They hope to include gene expression patterns and brain activity in future generations of the application.

VIRTUAL REALITY CHALLENGES

The market for VR is changing quickly and faces several challenges, including:

- » VR can make people feel motion sick, which can limit how much people use it and this hinders their enthusiasm.
- » A dedicated space is needed for systems that allow people to move around, when needed
- » While pricing is now lower, most systems are still expensive or require an expensive PC.
- » Content is limited, but the tools for creating custom content are powerful and expanding.

Dr. Song and Dr. Persky will be demonstrating VR technology at the IRP Intramural Research Festival in the NIH Library, and the Brain Browser will be available to try at the booth, located at the South Entrance of the Clinical Center on September 14-16 (Wednesday-Friday). Be sure to check out their demos and the Virtual and Augmented Reality Interest Group (<https://list.nih.gov/cgi-bin/wa.exe?A0=varig>).

Many companies create hardware for Virtual Reality. Here we focus on a sampling of the current leaders in the Virtual Reality space, at several levels of sophistication:

GOOGLE CARDBOARD

This is called Google “Cardboard” because it is a piece of cardboard folded according to a design, with two magnifying lenses and a simple button, into which a smartphone is inserted. This platform for VR launched in June 2014 as a means of creating an immersive environment that takes advantage of the display, processor, and motion sensors of a modern smartphone to track head motions. Google launched an accompanying mobile app, which serves as a “Main menu” and allows navigating while wearing the device. While this is not the best VR experience, the low cost (retail \$15) has enabled the distribution of 5 million units.

SAMSUNG GEAR VR

This (mostly plastic) device also offers mobile phone-based VR, but it is specifically designed to work with several models of Samsung Galaxy smartphones. It includes a touchpad and support for applications on the Oculus Store for a vastly improved (but more expensive) experience to Google Cardboard.

OCULUS RIFT

This device is fully dedicated to Virtual Reality, rather than serving as a phone. It helped to popularize the concept of consumer VR through demonstrations at the E3 conference in 2012, followed shortly by a Kickstarter campaign. Facebook purchased

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VIRTUAL REALITY HARDWARE

(continued from page 5)

the company in 2014 for a cool \$2 billion. Two developer versions were available (DK1 and DK2) but the consumer version (CV1) was finally launched in March 2016 for \$599.

Only featuring one tracking camera, Oculus Rift is designed for a sitting and standing experience, with some movement possible but limited to a 5' x 5' space. Controllers are limited to keyboard or a handheld Xbox One game controller and the Leap Motion hand tracking camera, but Oculus plans to release the "Oculus Touch" motion-tracked controller, which ships with an additional tracking camera, to expand movement area and add tracking of the controller(s). Oculus Rift requires a PC that works with the Oculus Store and has a good video card (est. \$1200).

HTC VIVE

The Vive launched about a week after the Oculus Rift CV1, with a similar experience and slightly higher price point (\$799). It features expandability to two handheld controllers and room-scale tracking (through 70 sensors on the HMD and two base stations mounted either on a camera stand or attached to the wall) in a 15' x 15' space. Like the Oculus Rift, the Vive requires a PC that meets specifications. It works with Valve's SteamVR platform to deliver games and VR content.

SONY PLAYSTATION VR

Set to launch in October 2016, Sony Playstation VR will likely be the most ubiquitous VR (\$399) and relies on the PS4 instead of a PC. It uses the Playstation Network to deliver games.

APPLICATION DEVELOPMENT

Several game development platforms exist for creating content for Virtual Reality. The two most popular game engines, Unity and Unreal Engine, are popular because they are easy to use, affordable, and can work on many different gaming platforms, from mobile phones to PCs.

NIH's Dr. John Ostuni (ostunij@ninds.nih.gov) taught classes in the use of Unity over the summer of 2014. He now provides assistance and teaches the use of emerging technologies through the VARIG scientific interest group, which meets on the 3rd Friday of the month. Join the VARIG ListServ here: <https://list.nih.gov/cgi-bin/wa.exe?SUBEDI=VARIG&A=I>

Keep Your Audience Engaged for a Successful Scientific Talk

By *Pushpanathan Muthurulan, PhD*

Science moves forward by the active sharing of ideas, from informal conversations between researchers in hallways to great plenary talks at scientific meetings. Successful academic careers are punctuated by high stakes dissertation defenses, job talks, chalk talks, seminars, and teaching students. Giving a good scientific talk seems like a herculean task for many researchers. A speaker's discomfort during presentations, sometimes speaking with a halting tone, might cause the audience to lose attention, squirm, yawn, or even leave the meeting place. This can make the speaker nervous and more reluctant to take the stage again.

For fellows who want to give a great scientific talk to diverse audiences, the NICHD Office of Education organized a highly interactive workshop "*Speaking about Science: Giving Scientific Talks*" on August 8, 2016, led by Scott Morgan, renowned public speaking coach for the government, academy, and private organizations. The workshop introduced a nine-step process to prepare a clear and engaging talk for a variety of scientific audiences. Morgan featured topics related to presenting data, identifying the theme and focus, creating effective visual aids, and beginning and ending a talk.

According to Morgan, the primary goal of a successful speaker is to educate and keep the audience engaged during the presentation. He also added that the speaker should realize that giving a scientific talk is a privilege. It's an opportunity to share your excitement about your work and receive valuable input from the audience. Effective communication between the speaker and the audience enables the flow of ideas for the betterment of our scientific community.

During the workshop, Morgan presented an hourglass format for the key components of a successful scientific presentation. He divided the hourglass into three parts. The top of the hourglass represents a broad introduction, where the speaker should find common ground with the audience. Morgan suggests you provide basic information that will satisfy a diverse scientific

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Keep Your Audience Engaged for a Successful Scientific Talk

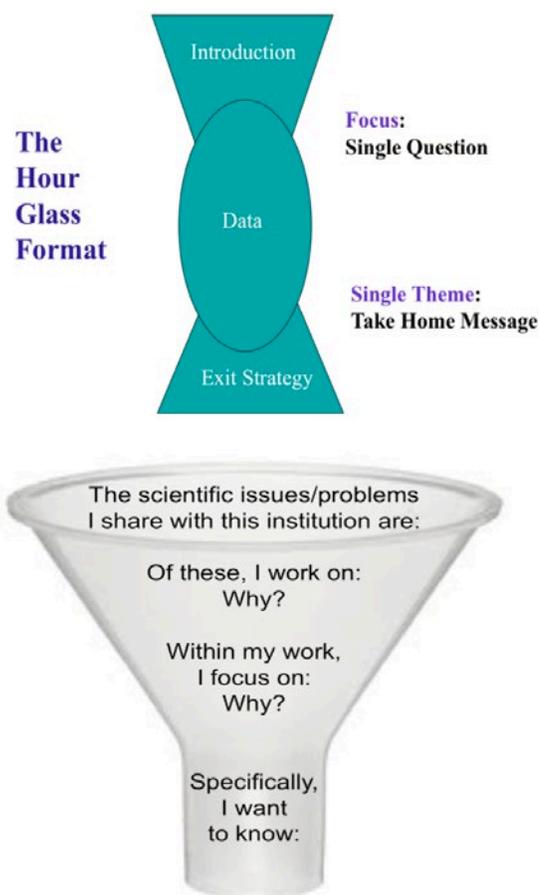
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audience and then narrow down to the main question of the talk. The middle part of the hourglass represents the presenter's key data supporting the main question of the talk, with a take-home message for the audience. The bottom of the hourglass represents an "exit strategy," where you end the presentation with a well-planned future approach.

The following are nine key steps to structure an effective scientific talk:

1. Establish a memorable, single **theme** that can be a take-home message for a diverse audience
2. **Focus** on a single key question
3. Include a **Money slide**—a slide with key data that supports the main question of the talk
4. Use **simple images** with minimal text (2 minutes per slide rule)
5. Use **power point control** to preview, highlight, and analyze the content within slides
6. Find **common ground** for diverse groups of audiences
7. Use a **brief title** and make it specific, short, and catchy
8. End with an **exit strategy**, a well-planned future approach
9. **Teach** your work, as a teacher would, to keep the audience engaged during the talk

The scientific talk is one of the most important communication forums for all researchers. Modern scientists should be able to deliver a well-organized scientific talk to enhance their reputation and strengthen their scientific research through sharing and feedback. Creating an effective presentation, organizing a well-defined talk, and keeping the audience engaged during the presentation are key ways to ensure a successful scientific talk. I believe that this workshop has benefitted the participants and has provided an effective path in preparing a clear and engaging talk for a diverse scientific audience.



Graphic courtesy of Scott Morgan, *Speaking About Science*, Cambridge University Press, 2006), www.MorganGp.com

Congratulations to the 2017 NICHD FARE Recipients

Congratulations to all 20 fellows and graduate students who received the annual Fellows Award for Research Excellence (FARE) during the 2017 competition. FARE is a competition to recognize the noteworthy research completed by intramural fellows. Twenty NICHD awardees out of a total of 206 finalists is a terrific accomplishment, and we had the third highest number of winners after NCI and NIAID.

To learn more about FARE, please visit <https://www.training.nih.gov/felcom/fare>.

Below is the list of award recipients, together with the name of each person's mentor. Don't forget to check out their posters at the annual NIH Research Festival, September 14 – 16 (see [September events](#)).

Gregory Holmes-Hampton (Rouault)
 Carlos Guardia (Bonifacino)
 Rui Jia (Bonifacino)
 Felipe Montecinos (Nossal)
 Yeyi Zhu (DIPHR)*
 Gernot Wolf (Macfarlan)*
 Annabel Berthon (Stratakis)
 Sarah Pugh (DIPHR)
 Shristi Rawal (DIPHR)
 Ki Soon Kim (Rouault)

Josefina Ocampo (Clark)*
 Sang Yoon Park (Bonifacino)
 Maria Bagh (Mukherjee)*
 Eric Cheng (Machner)
 Pushpanathan Muthuirulan (Lee)
 Daniela Calvigioni (McBain)
 Wei-Chia Tseng (Porter)
 Jason Wester (McBain)
 Alejandro Alvarez-Prats (Balla)
 Solji Park (DeCherney)*

(*Indicates previous winners)

Meet Our New Fellows

Please join *The NICHD Connection* in welcoming the following fellow to the NICHD family:



Amra Saric

Home city and country: Toronto, Canada

Degree institution: PhD, Ryerson University, Toronto Ontario

NICHD mentor: Dr. Juan Bonifacino

Area of research: I am interested in how the intracellular positioning of lysosomes relates to health and disease.



By Arnab Datta

Cameron Highland
Butterfly Garden,
Malaysia, 2008. Arnab
had just started his
PhD in Singapore, and
it was his first trip to
Malaysia.

Life Outside Lab, National Park Pics

Celebrating the
100th ANNIVERSARY of the
National Parks
IN THE U.S.



By Amy Palin

Haleakala National Park, June
2016. Amy visited the park
while attending the ThymUS
conference on Maui. She took
her photo shortly after sunrise,
on the peak of the volcano.



By Brenda Hanning

Yellowstone, 2015. This shot is from Brenda's Fall visit to Yellowstone National Park in September last year.

By Gulcan Akghul

Shenandoah National Park. From left to right, Gulcan, her sister Ece, and Lalitha Kurada, another postdoc at the NICHD, exploring the natural beauty of America.





By Jeremy Swan
Shenandoah National Park, July 2016. Jeremy went to Shenandoah National this summer with his kids and took this photo from his balcony at the Skyland Resort cabin rental.



By Sourav Haldar

Shenandoah National Park, October 2015. Sourav took this picture during a long drive through Shenandoah National Park to capture the fall color of the valley with lab colleagues.



By Shana Spindler

Red Rocks National Park (left) and Valley of Fire State Park (below), November 2015. Shana took this picture at one of the Nation's most beautiful National Parks, Red Rocks. Later the same month, she snapped a colorful photo at the Valley of Fire State Park in Nevada.



September Announcements

DR. PARMIT SINGH RECEIVES 2016 IARF AWARD

Congratulations to **Dr. Parmit Kumar Singh** for receiving a **2016 Intramural AIDS Research Fellowship (IARF)**. Dr. Singh, a postdoctoral fellow in the laboratory of Dr. Henry Levin, identified a surprising link between splicing and the amount of HIV-1 integration within genes. He showed that HIV-1 prefers integration into highly spliced genes, and this preference depends on the host chromatin factor LEDGF/p75, which contains a PWWP chromatin binding domain and an integrase-binding domain.



Now, Dr. Singh studies the mechanism of LEDGF/p75 dependent splicing to understand its role in HIV-1 integration. With the IARF grant, he aims to identify novel transcripts or alternatively spliced transcripts in the absence of LEDGF/p75 and to understand the role of the PWWP domain in the LEDGF/p75 dependent splicing. To learn more about Dr. Singh's work, check out his latest **paper**, published in *Genes & Development*, titled "LEDGF/p75 interacts with mRNA splicing factors and targets HIV-1 integration to highly spliced genes." Or read about it in *The NICHD Connection* February 2016 "**Hot Off the Press**" column.

The IARF is a one-year fellowship developed for graduate students and postdocs at the NIH who advance interdisciplinary studies on HIV and AIDS. (Editor: Remember that grant applicants and awardees are eligible for financial incentives through the NICHD **Fellow Intramural Grant Supplements (FIGS)**. Contact **Dr. Yvette Pittman** for details.)

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September Announcements

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THE 2017 FELLOWS RETREAT PLANNING: AN OPPORTUNITY AWAITS!

You are invited to serve on the Steering Committee for planning the 13th Annual Meeting for postdoctoral, clinical, and visiting fellows and graduate students. Please send a note to Yvette Pittman (pittmanyv@mail.nih.gov), NICHD Office of Education, or Shakib Omari (shakib.omari@nih.gov), chair of the 2017 Steering Committee, to express your interest.

The group works together to establish the meeting's program, invite speakers, review abstracts, select fellow/student presenters, and moderate sessions, among other responsibilities. It's a great opportunity to sharpen your soft skills while working in a team to plan this annual spring event! ***We hope to start our monthly, one-hour meetings on Thursday, September 29th, at 3 pm.***

SAVE THE DATE: TEACHING-BASED PROFESSORSHIP WORKSHOP, OCTOBER 11

If you are considering an academic career and want a jump-start on preparing your faculty application, the NICHD Office of Education is offering a workshop for you!

The Insider's View on Teaching-Based Professorships
Tuesday, October 11, 10 a.m. to 12 noon

Led by Sydella Blatch, Ph.D.
Associate Professor of Biology
Stevenson University

This workshop will provide an overview of what the teaching-based professorship is like on a daily basis and how it differs from being at a research-intensive institution. It will go beyond introducing you to the components required for an academic application and focus on ways to stand out to various search committees. Dr. Blatch will share some of her helpful tips on writing a teaching philosophy and interpreting job ads to identify what key elements to include in an application. She will also be available for individual consultations following the workshop to answer your specific questions on how to prepare a competitive packet.

Note there are 25 spots available, if you would like to attend, please send Yvette Pittman (yvette.pittman@nih.gov) an email.

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September Announcements

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SAVE THE DATE: MOCK STUDY SECTION OBSERVATION WORKSHOP, OCTOBER 14

Planning to apply for a NIH grant and want to learn what happens to your application after you hit “SUBMIT”?

In partnership with NICHD Division of Extramural Research, the Office of Education is offering a workshop for intramural fellows on **Friday, October 14, from 9 am to 12 noon**, with:

NICHD Program Officer, **Dr. Susan Taymans**
NICHD Scientific Review Officer, **Dr. David Weinberg**

This workshop will cover how a study section works, the roles of program officers and scientific review officers and how they can help you, and the process after your grant is reviewed. To gain an understanding of the distinctions among grant applications, the kinds of scientific comparisons that are made, and how scoring is modified based on the discussion, it will also include a mock study section with several extramural and fellow reviewers, scoring two K99/R00 NIH applications.

Note there are 40 spots available, if you would like to attend, please send Yvette Pittman (yvette.pittman@nih.gov) an email.

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September Announcements

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CHECK OUT THE NICHD SCIENTIFIC RETREAT!

The NICHD Scientific Retreat is **Thursday, September 8**, and is open to all Fellows and other trainees, scientific and clinical science staff in the NICHD, as well as the PIs. There has been wide enthusiastic support for this Retreat as evidenced by the high turnout of NICHD DIR PI groups (~80%) that are represented by talks and/or posters.

We call on the DIR PIs to actively encourage their Lab members, especially Postdoc and PostBac Fellows at all stages of career development, to participate. The retreat will be for one day only, in **Lipsett Auditorium in Building 10**, with posters in the adjacent **FAES terrace**. This will be an excellent opportunity, an investment, to hear some overview of the active modern biomedical research in the NICHD DIR.

The program will include three Oral Sessions comprised of eleven presentations by PIs and Staff Scientists:

- Session I) NEUROENDOCRINOLOGY: BENCH AND BEDSIDE
- Session II) GENOME DYNAMICS
- Session III) DEVELOPMENT AND GROWTH

In addition there will be two very short talks by the NICHD TmT (Three-Minute Talks) Finalists, as well as the Scientific Image Awards and a five minute talk on the "Investment of Research Ethics."

66 posters will be divided into two Poster Sessions; odd number posters from 11 AM–12:45 PM, and even numbers from 5:30–7 PM.

There will be plenty of coffee and pastries beginning at 8:30 a.m. Welcoming Remarks will begin at 8:50 a.m. followed by the first talk at 9:00.

Dr. Richard Maraia, on behalf of the 2016 NICHD Sci Retreat Organizing Committee



September Events

WEDNESDAY, SEPTEMBER 7, 12 – 1 PM

For All NICHD Postbac Fellows: Postbac Orientation Session & Pizza Lunch
Building 31, room 2A48

Our institute has approximately 50 postbacs conducting both clinical and basic science research. We would like you to meet each other while sharing various training and volunteer opportunities, such as ICU simulator rounds, the “Becoming an Effective Scientist” postbac course, shadowing at our Genetics or Endocrinology Clinic, and volunteering at the Children's Inn. Also, you can meet our two postbac representatives for NICHD: Daniel Flores and Rim Mehari.

Through career development, outreach, and social activities, we want to enrich your NIH training experience. Come and join us!

THURSDAY, SEPTEMBER 8, 8:30 AM

NICHD Scientific Retreat
Lipsett Auditorium, Building 10
See [September Announcements](#) for more info

MONDAY, SEPTEMBER 12, 12 – 1:30 PM

“Becoming an Effective Scientist”
Clinical Center

Our annual postbac course will launch on Monday, September 12. This unique course, an NICHD tradition, runs over lunchtime on Mondays, from 12 noon to 1:30 p.m., in the Clinical Center. The intent is to create a comfortable environment within a small group of peers to perfect your analytical skills while expanding your knowledge of experimental techniques.

The 11-week series will launch with a practical focus, including designing experiments, keeping a good lab notebook, and presenting your research. In subsequent weeks, we will shift to mini-lectures and paper analysis with a scientific focus. Directed by Dr. Afrouz Anderson, this year's curriculum will cover different areas of biomedical research, including neuroscience, endocrinology, physical biology, epigenetics, and cellular and molecular biology, as well as sessions with a clinical research focus.

We provide pizza, by the way, so you only need to bring a beverage with you. And for those of you who attend more than half of the sessions, we provide a certificate in recognition of your participation. We don't restrict participation to NICHD. If you know of a postbac friend in another institute who would be interested, please let me know.

If you would like to register, please contact Yvette Pittman at pittmanyv@mail.nih.gov. There are only 15 slots left.

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September Events (continued from page 18)

WEDNESDAY – FRIDAY, SEPTEMBER 14 – 16, 9 AM

NIH Research Festival

Building 10

More info at <https://researchfestival.nih.gov/2016>

FRIDAY, SEPTEMBER 30, 10 – 11 AM

NICHD Postdoc and Graduate Student Orientation

(For new postdocs and graduate students)

Building 31, room 2A48

Led by the NICHD Office of Education, the orientation will highlight both NICHD and NIH-wide intramural resources for postdoc fellows and graduate students.

Topics will include, but not limited to:

- » Career-planning tools
- » Grant opportunities for fellows
- » Ideas for presenting your science locally
- » Scientific resources and core facilities available to you

We will share information about key programs to support your professional development, complementing the mentored experience you will have at the bench. Don't miss this opportunity to meet fellows from other research areas and different buildings on campus.

To register, please contact Yvette Pittman (pittmanyv@mail.nih.gov).