

The NICHD Connection

October 2016

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Former Fellow Follow-Up with Artist Peter Krsko, PhD

This month we're catching up with Dr. Peter Krsko, scientist, artist, and community leader. Dr. Krsko was a postdoctoral fellow at the NICHD from 2006 to 2009 in the Laboratory of Integrative and Medical Biophysics, advised by Dr. Ralph Nossal. He studied bacterial biofilms, specifically their microscopic morphology and mechanical properties.

After his postdoctoral work, Dr. Krsko transitioned from bench to brush, founding Krsko Creative Group (<http://www.peterkrsko.com>) and becoming a community leader in the integration of science and art. He is a driving force in education, but you don't need to take our word for it; check out our Q&A with Dr. Krsko here:

When did you start thinking about a career in art?

It's always been a challenge for me to draw the dividing line between science and art. As a microscopist, I have always presented my data and results in a visual way. Based on feedback from conferences and publications, I realized that images help the audience to understand and remember the message more effectively.

During my graduate studies at Stevens Institute of Technology, I found myself in a group of creatives who worked in public spaces in a collaborative manner. They were visual artists, performers, educators, and scientists. There was a natural connection between these creative people, and our collaborations had a strong impact on our community.



Dr. Krsko stands in front of his large-scale mural in Washington, D.C. The zebras portray strength of community among small business owners who reside in the Union Market neighborhood. Photo by Alicia Cosnahan.

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Letter from the Editor

My mother is an artist, and my father is an aeronautical engineer. Often, I've struggled to find a balance between both worlds. I'm drawn toward the sciences, with its search for truth, and yet I feel pulled toward art and abstract beauty. It's no surprise that I merge the two with a yearly arts issue.

Creating art is a vulnerable process. It's an open window into someone's mind, showing you what no one can see, unless the artist reveals it. The ability to portray complex ideas in a unique manner lends itself to both the artist and the scientist. Dr. Peter Krsko, former NICHD fellow, has devoted his career to this intersection between art and science. Founding Krsko Creative Group, he uses art to highlight scientific concepts for the community, both young and old. We give you the opportunity to peek inside the artist's mind in this month's Former Fellow Follow-up with Dr. Krsko ([pg. 1](#)).

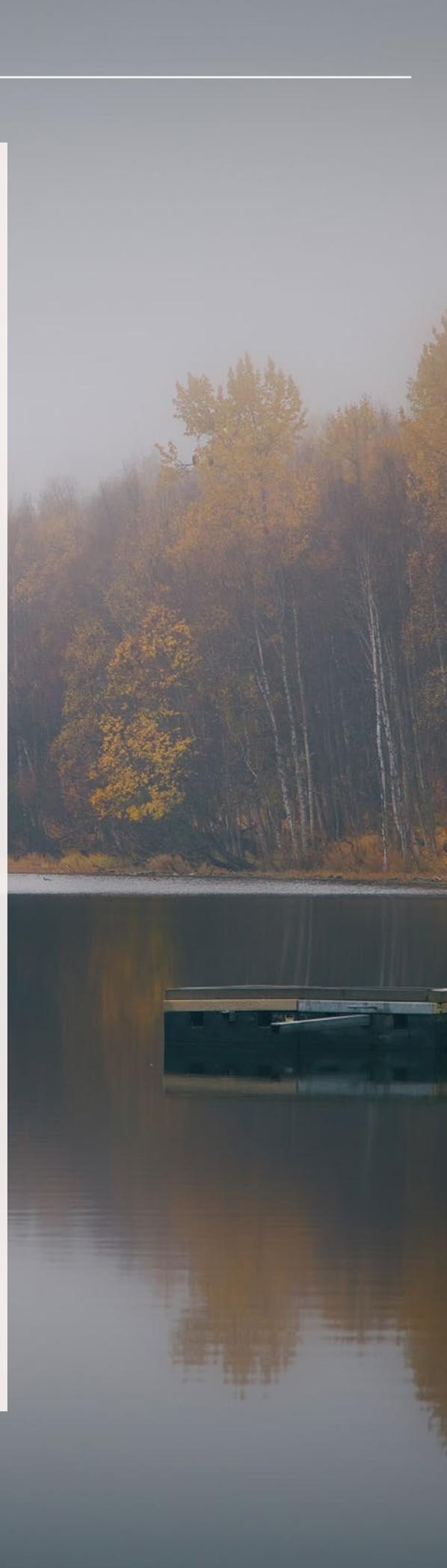
Art comes in many forms: paintings, music, sculpture, dance, writing, and, yes, even comics. To the graduate and postdoctoral researcher, *PHD Comics* by Dr. Jorge Cham is a popular go-to for a little procrastination. In April, Dr. Cham offered his words of wisdom during the fellows' retreat keynote. To learn about the underlying inspiration for *PHD Comics*, check out his talk recap ([pg. 11](#)) by Dr. Courtney Kurtyka.

Last month, Jeremy Swan navigated us through the 3D world of virtual reality. This month, he brings it back to 2D and discusses judging criteria from the recent scientific retreat image competition. Check out his article in "The Arts" column ([pg. 9](#)).

We wrap up this issue with a helpful guide on joining NIH listservs, several announcements including an exciting award win for an NICHD fellow, and not-to-be-missed October events.

Your Editor in Chief,
Shana R. Spindler, PhD

Keep those questions, comments, and ideas coming. To contact our editor, please send your emails to Shana.Spindler@gmail.com.



Former Fellow Follow-Up (continued from page 1)

Those artistic endeavors took me to a wide variety of places, and I got an opportunity to meet people with all sorts of backgrounds. I realized that I was fortunate to receive an excellent education. I met thousands of young people who were more intelligent and more talented than I am, but somehow they had never been exposed to education that would spark an interest in the world around them.

So, I started incorporating science and engineering lessons into community art projects. Because of increasing interest, the workshops have grown into weekly series, then summer camps, and eventually we started developing lesson plans for after-school programs and workshops for the school to supplement their core curriculum. Looking back, it has been an excellent experience meeting all these young people whom I wouldn't meet otherwise.

Although outreach programs exist, there is still a huge vacuum and demand for learning science and engineering in a way that is creative and focused on hands-on projects. We live in the most advanced age of human culture, so it is critical more than ever before to encourage creativity. A potential danger is to become passive consumers of information. The recent technological advances must be responsibly used, and young people must be encouraged to stay creative.

Young people possess wonderful talents. Our responsibility is to capture those talents and ensure that we are raising the next generation of inventors, thinkers, and makers who will enrich our culture and human knowledge. The challenge remains in how we provide the necessary educational resources equally to everyone, and how do we trick them into learning?

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Dr. Krsko's students learning about the physics of flight through a hands-on rocket project (above) and a study of wing anatomy (below). The students often engage in experiments that involve high pressure, materials, and tools that are not available in their classrooms.

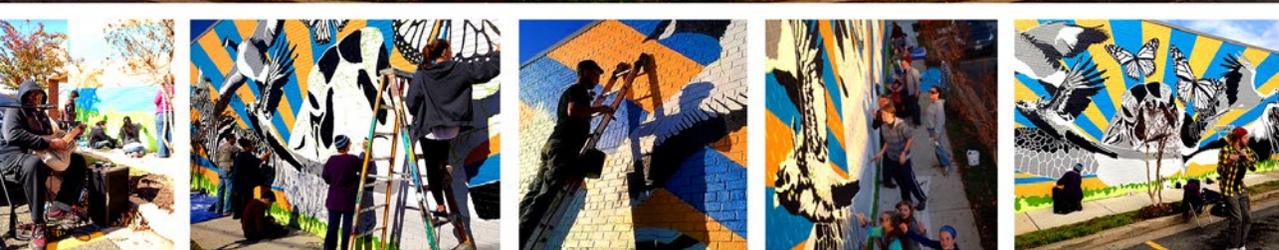


Former Fellow Follow-Up (continued from page 3)

A school mural designed and painted by students who examined the invisible world around them using microscopes and then turned their images into stencils to create giant images on the wall. Photo by Peter Krsko.



An art project depicting the topics of diversity and immigration. The Takoma Park community chose an educational approach to celebrating the movement of species around the globe, collaboratively designing this mural of migratory animals.



Can you tell us a little about Krsko Creative Group and how it came to be?

I chose the road less traveled and decided to trade the security of traditional academia or corporate research for complete independence and freedom. Krsko Creative Group is an umbrella of a variety of collaborative projects and services that we provide to our community. The word "group" refers to both a group of creatives working together as well as a diverse group of initiatives and programs.

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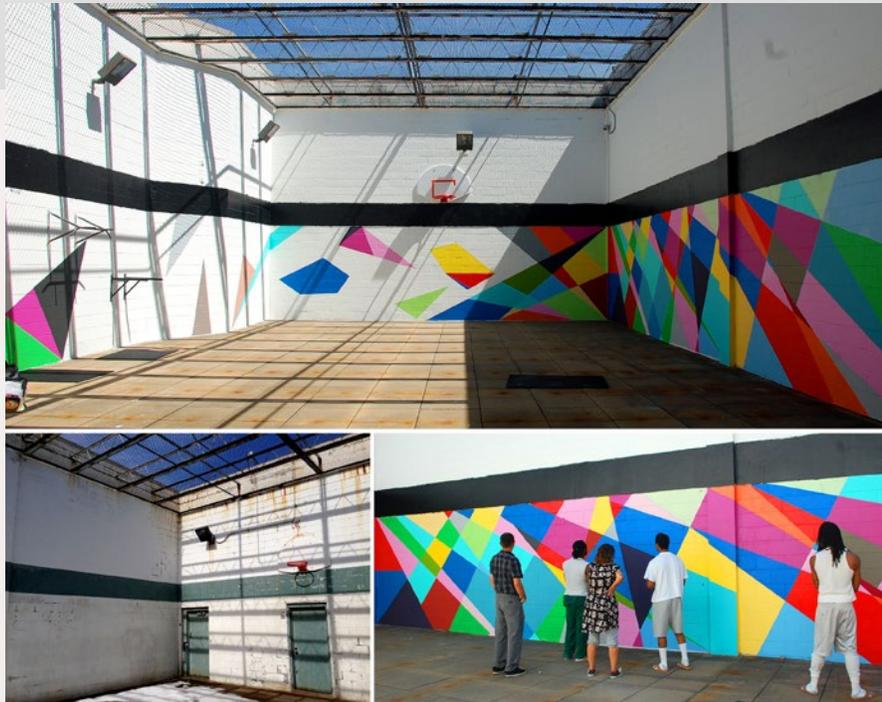
Former Fellow Follow-Up (continued from page 4)

The combination of art, science, and education provides opportunities to cross-pollinate and to innovate. We specialize in development of new nontraditional lesson plans. And we constantly test them. We just finished a series of lessons for middle-school students focused on the science of flight. They explored how organisms and objects fly in nature, and they created wonderful artistic wings, piecing them together feather-by-feather, and they created air-powered rockets.

Almost every project is inspired by nature. Even socially sensitive issues, such as human migration, are explored from the angle of how other organisms move around the globe. Recently, we were given a creative challenge to create a large mural portraying the diversity of the local community and discovering where the residents came from. Instead of focusing on the cultural heritage of the various groups, we investigated the global migratory patterns of many living organisms. During this process, the participants learned interesting facts about the dynamic nature of these populations, and as a result, together we have painted a mural full of migratory animals. More importantly, now they perceive the current issues in human migration from a completely different point of view.

This educational approach is critical for maintaining a healthy conversation in society. Therefore, education and creativity should be more accessible to all. That's what we strive to provide and to maintain in the public domain. Public art is a

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To bring creativity to all communities, Dr. Krsko often works in correctional facilities. He brings the brushes, paint, and all necessary tools. After explaining the process, the inmates improvise their own artwork. Photo by Claire Schwadron.

Former Fellow Follow-Up (continued from page 5)

great tool to achieve this goal. It transforms public spaces, promotes development of stronger, healthier, and smarter communities, and it keeps education and creativity free and accessible to all.

What's your typical day like?

There is not a typical day, but when not traveling, a summer day starts at 4 a.m. in the office. That's when writing and planning seem to be the easiest. As soon as the sun shows up, a barefoot walk in the morning dew is irresistible. My studio is surrounded by a garden, wild berries, and a maple forest. Every day I discover a new source of inspiration just by sitting and listening.

The early part of the day is dedicated to planned tasks. The afternoon starts with a good and long lunch and continues in the studio with sketches, brainstorming, and prototyping of the new projects.

As the day starts with the sunrise, it also ends with the sunset. I try to dedicate the evenings to my family and friends.

What has been your favorite project with Krsko Creative Group?

Every project has a magical element that makes it unforgettable. The projects in new places with new friends have the strongest impact on my work. Currently, I am excited about an upcoming residency

at the University of Wisconsin in Madison in Spring 2017. It is an interdisciplinary project that brings together a diverse group of departments: Arts Institute, Physics, Agricultural Engineering, and Human Ecology. Besides teaching a course, I will have an opportunity to create a new body of nature-inspired artwork.

Recently, I moved to a rural area and I am so fascinated by the daily explorations in my backyard and in my garden that I cannot help but find a way to share this with a larger audience. Technology, philosophy, and art can be further stimulated by the solutions found in nature.

Where do you see the intersection between science and art?

Personally, I see that everywhere. Art allows science to be more accessible and less intimidating. Science allows the artists to explore new ideas and horizons that lead to visionary innovations.

Every summer, I get the chance to work with young people in summer camps. It is a perfect environment to explore scientific disciplines in a playful and artistic way. It's inviting, exciting, and transformative. The most popular activities include field trips to local workplaces that focus on work that combines science and art. This has included the laboratories at NIH or the exhibition studios and shops at the

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Former Fellow Follow-Up (continued from page 6)

Smithsonian Institution.

During these programs, it is rewarding to see how the students get inspired. For example, they combine microscopy and stencil making to create giant murals of tiny objects and patterns that are otherwise invisible. They learn about the microscopic world on their fingertips in an informal yet effective way. And at the same time, they create significant works of public art.

Which skill sets from the lab best apply to working in the art field and/or starting your own company?

The most important ability is to be creative and to pay attention to details. It helps to be organized and to document all ideas and findings. One needs to question everything and to be open to learning every day. One always works on new projects in both the lab and the art studio and often finds it necessary to fabricate new tools.

What activities or resources at the NIH helped prepare you for your career transition?

Ralph Nossal's lab was the perfect place for a postdoctoral fellowship. Everyone was encouraged to research anything and everything that was thought provoking. Reading papers and attending presentations that were not necessarily related to one's main research proved to be most educational and interesting. NIH is an unbelievable resource for young scientists. You should take advantage of the library, all the presentations,

and develop as many collaborative partnerships as possible.

However, I chose to venture into the unknown mainly because it was necessary for me to experience and learn skills that have never been emphasized during my career development, such as financial management, client relations, marketing, and team development.

It was discouraging to witness my peers following the traditional path of graduate school, multiple postdocs, and then looking for employment opportunities. Some felt that the best years of their lives were somewhat discarded in this demanding process. Young minds should be freer to think and innovate.

What do you find most exciting about your career?

People, freedom, and the necessity to improvise.

The diversity of my projects allows me to meet wonderful people of a wide range of talents and knowledge. That is always a humbling, yet exciting experience. Whether they are scientists, business owners, or artists, they all have inspiring stories to tell and innovative ideas to share. For example, one of my clients is a company in the food industry that was started by a couple of immigrants from Eastern Europe 30 years ago. Today, it is still a family-owned business, but their healthy products are available in stores around the world,

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Former Fellow Follow-Up (continued from page 7)

and the value of their business is approaching a billion dollars. The most inspiring fact is that the CEO still knows all the employees by name, and they still function as a huge family with a goal of making their customers healthy.

The knowledge that one can start from scratch with the right intention and build a company that improves lives and contributes to our collective culture is exciting. Self-reliance and a strong network create a sense of freedom. It is almost impossible to fail or to get stranded when one can rely on friends and collaborators. Freedom means different things for different people. Personally, I love the fact that I can be creative every day. Unexpected situations happen daily. However, they are welcome, because they require improvisation and learning new skills. And that is exciting.

What do you find most challenging?

The fact that a day has only 24 hours is always challenging. And dealing with the folks who resist creativity requires unnecessary energy.

Do you have any advice for fellows who are thinking about a career that is different than research?

One of the best pieces of advice I received in graduate school was to change fields within scientific research and beyond. When you enter a new field, you bring fresh thinking with you and increase the chances of making a significant discovery. We live in the best age of human history, surrounded by enormous resources. Don't hesitate to reach out and make the best use of all of it. And finally, surround yourself with the right crew.

If you have questions or comments for Dr. Krsko, please contact him at Pkrsko@gmail.com. His portfolio is available at www.peterkrsko.com.



The Arts: Scientific Retreat Image Competition

By Jeremy Swan

This year, the NICHD Scientific Retreat Organizing Committee launched an image competition, with images judged entirely on image quality and as works of art. This was a departure from most NIH image contests of the past, which were almost always based in part on the scientific merit of the image.

Many great images were submitted, which made choosing a winner difficult. Everyone involved hopes the contest will continue in years to come, and so we thought it would be good to breakdown the criteria used in selecting an image.

The judges for the image competition were deemed by the committee to have an “excellent eye for aesthetics” based on experience working with images in their work and hobbies. The judges included **Paul Williams**, communications director for NICHD, Dr. Harsha Mahabaleshwar, postdoctoral fellow and hobbyist painter in the Chitnis lab, and myself, Jeremy Swan, an avid photographer and “Bioviz Specialist” at NICHD. We were charged with selecting the most appealing image and a runner-up image from 17 entries.

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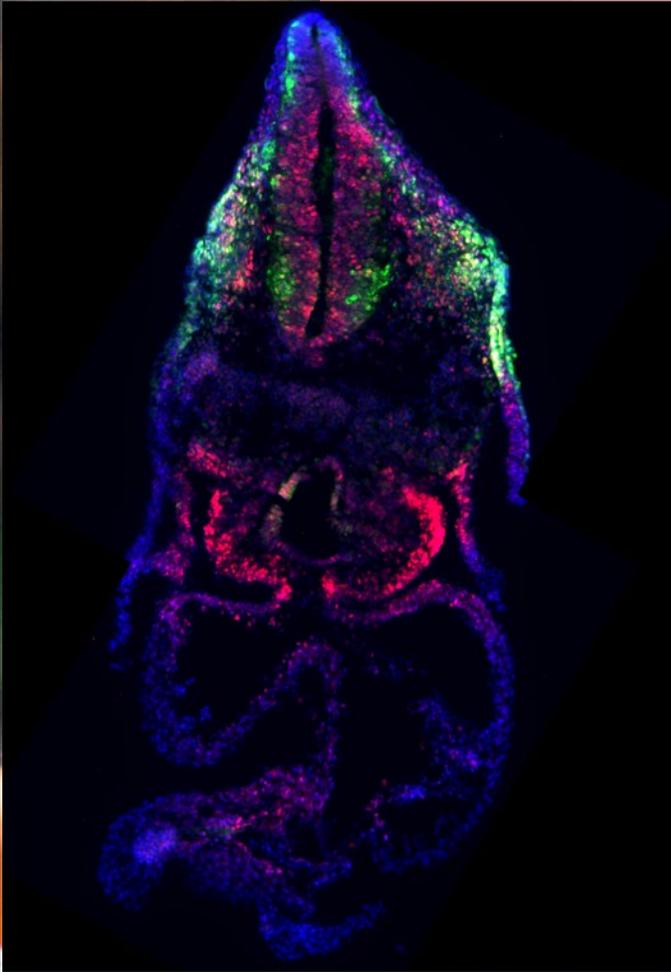

the arts



WINNER: *Greg Marquart, Burgess Lab*

18 Fish in 1: Expression patterns from 18 larval zebrafish show distinct subsets of neurons within the brain. Individual larvae are imaged on a confocal microscope, and the resulting volumes are aligned into the same three-dimensional space.

The Arts: Scientific Retreat Image Competition (continued from page 9)



RUNNER-UP: Carson Miller, PhD, Macfarlan Lab

Cross-section of an embryo reprogrammed by DOX-induced expression of Neurogenin2, Lhx3, and Islet1 transcription factors. In vivo administration of DOX to pregnant mice at E14.5 induces Lhx3 expression (red) across nearly the entire embryo. In response, a motor neuron reporter gene, Mnx1::GFP (green), is ectopically expressed in multiple tissue types in addition to normal expression in the dorsal neural tube. DAPI counterstain, blue.

The criteria that we discussed in selecting the image included composition, color palate, size and resolution, subject, overall image quality, and if diagrammatical numbers or labels made the image look more like a figure than art. The images were printed at their native resolution and reviewed in a meeting.

The judges unanimously selected Greg (aka Graham) Marquart's (Burgess Lab) submission "18 fish in 1" as the winner. He had a chance to describe the image during the retreat. The image is also being used in the "2016 NIH CFC Directors' Challenge – The Beauty of Science – art from the IC-D." Dr. Carson Miller from Dr. Todd Macfarlan's lab submitted the runner-up image.



"The Boss in His Den," a painting of Dr. Ajay Chitnis during a typical day, door always open, by image contest judge Dr. Harsha Mahabaleswar.

* Caption updated 10/7/16

Powerful Advice from the Creator of *PHD Comics*

By Courtney Kurtyka, PhD

Dr. Jorge Cham, creator of *PHD Comics* and co-founder of *PHDtv*, gave the afternoon keynote address at the NICHD Fellows Retreat last spring. His talk, entitled “The Power of Procrastination,” spanned the creation of his comics to the potential usefulness of procrastination.

Cham began *PHD Comics* while a graduate student at Stanford University, where he saw an ad in the newspaper looking for help with their comic section. Using this opportunity, he was pleased to share stories representative of the people and the culture of graduate school. Eventually, he posted the comics online, and they became popular throughout the world. He found that these stories of graduate school and research resonated regardless of the academic background or country of origin of the viewers.

Many fans have thanked Cham for his comics, some saying the comics are accurate depictions of academia, and others confessing the comics allow them to procrastinate from their own research. Cham has helped trainees realize that they are not the only ones who feel a certain way about the graduate school environment, a common message he receives from fans. Research and academics can be very isolating work, and the fact that these comics help others feel like they are part of a community has led Cham to appreciate that the comics are more meaningful than he had originally thought.

Cham then shared his thoughts on procrastination. He discussed how procrastination doesn't equate to laziness, and revealed several examples of useful work accomplished by academics while allegedly procrastinating, such as the creation of Google by graduate students. He also mentioned that time away from work could be important for encouraging creativity.

Ultimately, Cham thinks that the main issue with procrastination is not a lack of work being accomplished, but rather people feeling guilty over using time to do what they want in addition to research. This can be particularly difficult in academe because there is an endless supply of work and not necessarily a regular workweek.

Overall, Cham believes that procrastination is not necessarily a waste of time—it is about the work people actually desire to undertake. Therefore, he feels that it can be beneficial to engage in some procrastination from time to time. Maybe you should try it tomorrow...or next week, or maybe sometime next month...



Dr. Jorge Cham at the 2016 NICHD Fellows Retreat. Photo by Jeremy Swan.



Identifying Opportunities Through Listservs

By Courtney Kurtyka, PhD

One of the unique aspects of serving as a postdoctoral fellow at the NIH is the breadth of opportunities available. However, since there are so many events and leadership positions hosted by different centers, institutes, and offices, it could be difficult to hear about all of them unless they are distributed through a central location. In order to avoid this issue, fellows can use email subscriptions called listservs to learn and distribute information to everyone in that group. For NICHD fellows, there are listservs for both NICHD-only information and for all NIH fellows.

The NICHD Fellows listserv is used for NICHD-specific information. This includes receiving new copies of *The NICHD Connection* (our institute's newsletter that you are now reading), hearing about upcoming institute-specific events and workshops, and new leadership opportunities (such as joining the NICHD Fellows' Retreat Planning Committee or attending the NICHD Advisory Council). Fellows should be automatically signed up for this listserv (email distribution list) when they begin at NICHD. However, if for any reason you, or a friend, think that you might not be getting these emails, please contact Dr. Yvette Pittman at yvette.pittman@nih.gov to join.

To learn about NIH-wide events and opportunities, the FELLOW-L listserv is a fantastic resource. Updates sent over this listserv include upcoming career development workshops (such as the NHLBI Career Development Seminar Series), social networking events (from FelCom as well as

the Visiting Fellows Committee), volunteering opportunities, and open positions on FelCom. In order to join the listserv, please either send an email to listserv@list.nih.gov with "Subscribe FELLOW-L" (omitting the quotation marks) in the message or subscribe to FELLOW-L at <http://list.nih.gov>.

The Office of Intramural Training and Education (OITE) also has a listserv that they use for distributing information to fellows. Announcements sent through this resource include upcoming career development and exploration workshops hosted by OITE, opportunities to judge posters at the graduate student and postbac symposiums, and information on training programs and details (short-term rotations in other NIH scientific areas or offices). In order to sign up, please create an OITE account at <https://www.training.nih.gov/register>. This account allows you to RSVP to events and set up appointments with the career counselors for assistance with your CV/resume and interviewing tips.

While it might sound inconvenient to sign up for multiple listservs and receive even more emails, it can be a great way to learn about a multitude of opportunities. The knowledge and transferable skills that you can gain from these areas can be very helpful when trying to navigate a competitive job market. Likewise, networking socials sent through these listservs can provide a great chance to make useful connections and find a greater sense of community in your time as a fellow at NIH.

Life Outside Lab: NIH Institute Relay 2016

33rd Annual NIH Institute Challenge Relay
Thursday, September 22, 2016
NIH Bethesda Campus

Thank you to Chitnis and Dawid lab members for sharing this photo of their NIH Institute relay team "Fast twitch responders." Great team name!

Do you have a photo you'd like to share with NICHD fellows? We welcome your submissions! Please email our editor at Shana.Spindler@gmail.com.



Left to right: Chongmin Wang, Alex Bikker, Greg Palardy, and Damian Dalle Nogare (Chitnis lab) and Alison Heffer (Dawid lab).
Photo by Greg Palardy.

October Announcements

DR. DAN BENJAMINI WINS PRESTIGIOUS AWARD AT MRPMI3 MEETING

Congratulations to Dr. Dan Benjamini for receiving the 2016 Giulio Cesare Borgia Prize at the 13th International Bologna Conference Magnetic Resonance in Porous Media (MRPMI3) for “his contribution to advancing 2D Laplace NMR to human MRI.”

Dr. Benjamini, first-year postdoctoral fellow in the laboratory of Dr. Peter Basser, presented on a novel experimental design that makes 2D relaxometry feasible for preclinical and clinical magnetic resonance imaging (MRI) applications. His work addresses the problem that living tissue is microscopically heterogeneous, with water distributed among diverse compartments. While researchers could use multidimensional relaxometry—a type of nuclear magnetic resonance (NMR) technique—to reveal and separate these heterogeneous facets of tissue, the large amounts of data and scan time required in the process would be limiting. With Dr. Benjamini’s novel design, they reduced the amount of required data, in some cases by a factor of 500, opening the door for clinical application.

Please join *The NICHD Connection* in congratulating Dr. Benjamini on this impressive accomplishment.



October Events

TUESDAY, OCTOBER 11, 10 AM – 12 PM

The Insider's View on Teaching-Based Professorships
Led by Sydella Blatch, PhD, 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.

FRIDAY, OCTOBER 14, 9 AM – 12 PM

Mock Study Section Observation

In partnership with NICHD Division of Extramural Research, the Office of Education is offering a Mock Study Section workshop for intramural fellows 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 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.

PHD Comics

<http://www.phdcomics.com/comics.php?f=1893>

WHEN IT'S BETTER TO CALL YOURSELF A...

	"STUDENT"	"RESEARCHER"
GETTING A STUDENT DISCOUNT	✓	✗
REGISTERING FOR A CONFERENCE	✓	✗
USING STUDENT FACILITIES (HEALTH CENTER, GYM, HOUSING)	✓	✗
TALKING TO FRIENDS AND FAMILY	✗	✓
CRASHING DEPARTMENT PARTIES WITH SIGNS THAT SAY "NO STUDENTS ALLOWED"	✗	✓
FINDING PARKING ON CAMPUS	✗	✓
IMPRESSING SOMEONE ON A FIRST DATE	✗	✗

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