

CENTER FOR VITAL LONGEVITY ADVISORY COUNCIL 2018–2019

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Neural Activities

DIRECTOR’S MESSAGE Past and Future

Welcome to the CVL’s Spring 2019 newsletter, which provides a timely opportunity to reflect on our achievements over the past year or so. Chief among these



Dr. Michael Rugg

are measures of success on two metrics that, between them, serve as the gold standard of scientific accomplishment, namely research productivity and competitively awarded research grants. We have done well on both fronts: since the beginning of 2018 we have published more than 25 new, peer-reviewed papers describing our research findings, including in such prestigious scientific journals as *Proceedings of the National Academy of Sciences* and *Nature Reviews Neuroscience*. Within the same time-frame, CVL faculty have been awarded 6 new research grants, primarily through the National Institutes of Health, totaling more than \$7 million and bringing the total value of the grants awarded to CVL faculty since the Center’s inception to some \$38 million. Currently, each of our six research groups receives support from at least one federally funded research grant. Largely as a result of this new funding, the number of full-time scientists and support positions in the Center has surged from 46 in early 2018 to 58 at the present time. Adding to these

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6th Annual Dallas Aging and Cognition Conference Brings Cutting-edge Science to Dallas

The Center for Vital Longevity hosted the **6th Annual Dallas Aging and Cognition Conference** (DACC) from January 26–28, 2019 at the Marriot City Center. This year’s event focused on four themes: Animal & Human Models of Neurocognitive Aging, Dedifferentiation of Brain Structure and Function with Age, The Healthy Brain in Transition to Disease, and The Social and Emotional Underpinnings of Neurocognitive Aging. Each topic was introduced by an invited speaker well-known for their work in the cognitive neuroscience of aging, and followed by additional speakers selected from submitted abstracts related to each of the four themes. Lars Nyberg, PhD, of Umea University, Sweden, presented the Larry Warder Keynote Address: “*Successful Memory and Aging—What is the Evidence?*”

The event was hosted by CVL and co-sponsored by the Office of Research and the School of Behavioral and Brain Sciences at UT Dallas. It welcomed over 220 scientists from around the world, and was warmly appreciated by

Invited speakers included:

- Carol Barnes, PhD**
University of Arizona
Animal & Human Models of Neurocognitive Aging
- Thad Polk, PhD**
University of Michigan
Dedifferentiation of Brain Structure and Function with Age
- Brad Dickerson, MD**
Massachusetts General Hospital and Harvard University
The Healthy Brain in Transition to Disease
- Mara Mather, PhD**
University of Southern California
- Angela Gutches, PhD**
Brandeis University
The Social and Emotional Underpinnings of Neurocognitive Aging

the attendees. Since the inaugural conference in 2010, CVL has hosted the conference every two years, bringing

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From Technology Innovator to Volunteer

A business-savvy technology executive, CVL Advisory Council member **Rick Doucette** has made quite a transition from the fast-paced world of venture capital to spending much of his time today giving back. Rick grew up in Canada, attending New Brunswick University as a collegiate hockey player. After college, he began his career as an early-stage software innovator, eventually finding his way to Texas via Hong Kong, Australia, the UK, and stops on both the East and West Coast. He then elevated his role to a Chief Information Officer (CIO), helping mid-market companies leverage technology to grow their organizations. From there, Rick exited for-profit technology work to apply his skills in the non-profit sector, working first at the National Math and Science Initiative, where he spearheaded digital transformation for five years. He now serves as a “Fractional CIO,” working with organizations such as The Dallas Foundation and BachmanLake Together.

Rick explains that often times, business infrastructure, such as technology, can become an impediment for non-profits, getting in the way of their efforts to focus on their mission. “One of the unique things about non-profits is that they are generally underserved and can’t attract or retain the expertise they need to move them to the next level,” says Doucette. By offering his knowledge, he can make small changes that can lead to significant improvements for these organizations. When asked what he’s learned most from working with non-profit organizations, he said, “I didn’t realize the enormous impact of organizations for social good. It was off my radar.”

Rick was first introduced to CVL by fellow advisory council member, Larry Warder. Like many of our Advisory Council members, Rick has a personal connection to the devastating effects of Alzheimer’s disease, losing his father to complications related to the disease a few years ago. “My Dad was an amazing human being and athlete, who was ‘rock solid’ until all of a sudden he wasn’t. When his cognitive skills began



ABOVE: Rick and his canine companion, Bauer, often visit Senior Care facilities in East Texas; LEFT: Rick Doucette’s father, Cy Doucette.

to decline, his physical skills did just as rapidly,” says Rick. He describes the work being done at the Center as akin to the “the Wright brothers on the brain. It’s so humbling to think about the amazing work that they are doing.”

The loss of his father also led Rick to go through the process of training his six year old Goldendoodle, Bauer, as a therapy dog. Together, they make frequent visits to several Senior Care facilities in East Texas near his lake-house. He describes his work with Bauer to be very fulfilling. “People may not know my name, but they always remember the dog’s name. It gives them something to look forward to.”

Rick has been married to his wife Suzanne for twenty-three years. They have two college-age sons, Adam and Ryan, otherwise known as “Ace” and “Douce.” ☀

“I didn’t realize the enormous impact of organizations for social good. It was off my radar.”

6th Annual Dallas Aging and Cognition Conference Brings Cutting-edge Science to Dallas

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leading scientists to Dallas to share their latest discoveries in the field. As always, this year’s conference began with a “Welcome BBQ” on Saturday evening, where attendees enjoyed an opportunity to network and a little Texas hospitality. Conference sessions started the following morning and continued through Monday afternoon. The Center’s Advisory Board and Director’s Research Circle Members also hosted a “Meet the Scientists” dinner on Sunday evening where Center donors, Advisory Council Members and University Officials had an opportunity to visit with the plenary conference speakers and Center faculty.

Additionally, this year’s event recognized Larry Warder, former Chair of the Advisory Council, for his dedication and support of the Center by inaugurating a keynote conference address in his honor. Warder has been a champion of CVL for many years, serving as a member of the Advisory Council prior to assuming the Chair. He has also provided generous financial



Lars Nyberg, PhD, of Umea University, Sweden, presented the Larry Warder Keynote Address: “Successful Memory and Aging—What is the Evidence?”

support to the Center. Thanks to his generous donation, and the Sallie Asche fund, the Center was able to support

attendance of 20 out-of-state scientific trainees, including three scientists from Canada. ☀

Director’s Message: Past and Future

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achievements, we have given almost innumerable presentations to national and international conferences as well as hosting a very successful international conference of our own (see the story in this newsletter).

While we are pleased by these accomplishments, we are not complacent. Notably, our reputation nationally and internationally as a scientific center of excellence for research on the aging mind has yet to be matched within our local community. As described elsewhere in the newsletter,

with the assistance of a team from UTD’s Jindal School of Management we are hoping to redress this imbalance. This is an important goal: although substantial, the federal research funds we hold are restricted to the support of the specific research projects for which they were awarded. The funds cannot provide general support for the center’s research and training activities. These include the creation of travel and research fellowships to enhance the training of talented young scientists, the funding of the preliminary research often required

for new grant applications, and, not least, community outreach. Support for these activities depends largely on philanthropic contributions. It is our hope that we can quickly become as successful at attracting financial support from the community as we have in winning research grants from national agencies. ☀

Michael Rugg
Dr. Michael Rugg

NEW FACES

Brenda Villasana—Park Lab

Brenda joined the Aging Mind Lab this spring as the Administrative Services Officer. She is responsible for the administrative duties and responsibilities of the lab. She earned her undergraduate degree in neuroscience at University of Texas at Dallas. She has prior lab management experience as she most recently worked in Dr. Sven Vanneste's Lab for Clinical and Integrative Neuroscience at UTD. She spends most of her free time with her husband and two dogs. She enjoys traveling and learning about new cultures and places. Some of her hobbies and interests include digital photography, painting, playing the piano, reading, astronomy, and—of course—neuroscience. 🌞

Eliza Hearst—Park Lab

Eliza joined the Aging Mind Lab this spring as a research assistant. She earned her undergraduate degree in Psychology at Barnard College. While at Barnard, she worked in various psychology labs, including one that studied domestic canine cognition. Prior to working at CVL she was an ER scribe at Methodist Hospital. She is interested in how the brain changes throughout the lifetime and hopes to earn a PhD in Clinical Psychology. In her free time, Eliza likes to hike, cook and spend time outside. 🌞

Michael Besch—Park Lab

Michael joined the Park Aging Mind Lab this spring as a research assistant. Prior to joining the Center, he was at Elmhurst College, where he double majored in Psychology and Philosophy. At Elmhurst, he worked with Dr. Helga Noice on an intervention study that examined the effects of a theatrical arts course on the cognitive processes of older adults in an assisted living facility. Michael is interested in healthy cognitive aging, mindfulness, mind-wandering, and fMRI research design/analysis. He hopes his experiences in the Park Aging Mind Lab will prepare him for graduate school in Cognitive Neuroscience. After discovering climbing 4 years ago, Michael spends most of his free time bouldering, training for bouldering, and going on bouldering trips to the southeast. 🌞

Hudaisa Fatima—Rodrigue Lab

Hudaisa recently moved to Dallas from North Carolina and joined the Center this spring as a research assistant for the Rodrigue lab. Initially from the UK, she holds a MSc in Applied Neuropsychology from University College London. Prior to joining the Center, she worked at the Alzheimer's Disease Research Center at Wake Forest Baptist Hospital, NC assisting longitudinal studies which focused on identifying early risk factors that predict cognitive decline and dementia in cognitively asymptomatic adults and those with early signs of impairment. Her other research interests include Alzheimer's disease risk factors associated with Traumatic Brain Injury (TBI). She hopes to further strengthen her experience working with Dr. Rodrigue and plans to pursue a PhD program in Clinical Psychology. Outside the lab, she enjoys working out, reading and exploring eateries around the city. 🌞

Paulina Skolasinska—Basak Lab

Paulina joined the Basak Lab last fall as a doctoral student after completing her Master's in Psychology at the University of Warsaw, Poland. While working on her degree, she specialized in neuropsychology and her thesis was centered around mental rotation and physical activity in older people. She did a short practice in the Institute of Psychiatry and Neurology in Warsaw and realized the clinical route was not a fit for her. She is currently involved in a clinical trial on cognitive training, and her first year project is on working memory, focusing on healthy older adults. In her spare time, she likes to ride her longboard and look for new places to eat. 🌞

Farwa Haideri—Park Lab

Farwa joined the Aging Mind Lab last fall as a research assistant after graduating from Boston College with a Bachelor of Science in Psychology and a minor in Medical Humanities. She has experience working in different aspects of the healthcare industry, including scribing, academic research and ER work. She is particularly interested in neurology and hopes to attend medical school in the near future. 🌞

JSOM Students Conduct Capstone Project on CVL

Over the past few months, Director of Development, Megan Harrison and fellow members of her Executive MBA program have been working to help the Center for Vital Longevity revise their Development and Marketing plans. The goal of their project was to conduct an analysis of CVL's previous efforts, and present the Center with a strategy and specific tactics that will lead to increased visibility, name recognition, and support for the Center.

The team's study included researching "Best Practices" used by a variety of organizations that share similarities in their mission or focus to the Center for Vital Longevity. The team looked at both local and national organizations in a number of areas, including Governance, Marketing and Communications, and Donor Engagement. They also conducted a



Left to right: Heetesh Bahkta, Mukesh Patel, Megan Harrison, Jonathan Noonan, and Curtis Woodard conducted their Executive MBA Capstone Project on CVL.

number of interviews with a variety of Center stakeholders such as Advisory Board Members, Community Partners, Donors, Faculty and staff and have presented their findings to the Center's Faculty and members of the Advisory Council.

CVL hopes to use the result of

this study to inform their future Development efforts, creating a comprehensive Development plan to help grow the center. In addition to Harrison, the team included, Heetesh Bahkta, Engineering Team Lead at Intertek Testing Services NA, Inc., Jonathan R. Noonan, Finance Director at AutoNation, Mukesh Patel, Associate Manager at PGIM Real Estate Finance, and Curtis Woodard, Director of Business Development and Deposit Strategy at Lamar National Bank. The project served as the Transformation Field Project for the team, the final Capstone requirement of the Executive MBA Program for the Jindal School of management, where students work as a consultants to understand a real-life business challenge or opportunity; collaborate with the organization's leadership, and develop and present actionable recommendations. 🌞

CVL hosts February AWARE Luncheon

On February 25, 2019, Christina Webb, Ph.D., Postdoctoral Research Associate in Dr. Kristen Kennedy's lab at the Center for Vital Longevity shared her research on "False Memories in the Aging Brain" with members of AWARE during their February membership meeting. Dr. Webb, who joined the center in September 2018, completed her graduate and undergraduate work at The Pennsylvania State University. Her talk focused on the science behind how and why false memories—memories for events that did not actually happen—are formed in young and older adults. She discussed ways in which false memories are studied in the lab and presented research on brain activity related to false memory retrieval, and how such studies help us to understand while older people are more susceptible to faulty remembering. She is currently interested in investigating relationships between the brain's structure and function across the lifespan and identifying factors that influence age-related decline in cognitive function.

AWARE was founded in 1989 and is dedicated to fighting Alzheimer's disease. Their mission is to provide funding and support to nonprofit organizations that are working on the front lines to fight Alzheimer's disease in Dallas and the North Texas region. AWARE supports other nonprofit organizations



ABOVE: Christina Webb, Ph.D., shared her research on "False Memories in the Aging Brain" with members of AWARE during their February meeting.

that share their mission and are dedicated to fighting Alzheimer's through grants to their organizations. The Center for Vital Longevity is honored to be a recipient of previous AWARE grants and grateful for the organization's support of our research. 🌞

Mapping the Changing Landscape of the Aging Human Brain

If you were to compare a map of the UT Dallas campus today to one from forty years ago, there would undoubtedly be noticeable differences between the two. Many of the major landmark buildings may look familiar, but some of the roads may have changed, and the overall boundaries of the campus have been altered. Just as the campus can be measured and mapped, so can the areas of our brain, and understanding the organization of the brain map is critical to understanding the function of each area.

There has been significant progress toward illuminating the organization of this map in young adults. However, it has been unclear whether and how the layout of the map differs across the lifespan. New research, performed by doctoral student Liang Han in Dr. Gagan Wig's lab at CVL, has taken steps towards identifying these differences. Using 'resting-state' functional magnetic resonance imaging (fMRI) data from Dr Denise Park's landmark *Dallas Lifespan Brain Study*, Han and his colleagues created brain maps for five different age groups spanning from 20 to 93 years. The mapping approach is called resting-state boundary mapping.



Liang Han

These newly developed brain imaging techniques showed that some areas of the brain exhibit differences in network connectivity with increasing age, supporting a number of previous findings from the group. *"Age-related changes in brain function and anatomy may be associated with the subtle changes of the spatial topography of brain areas that we detected,"* Han said.

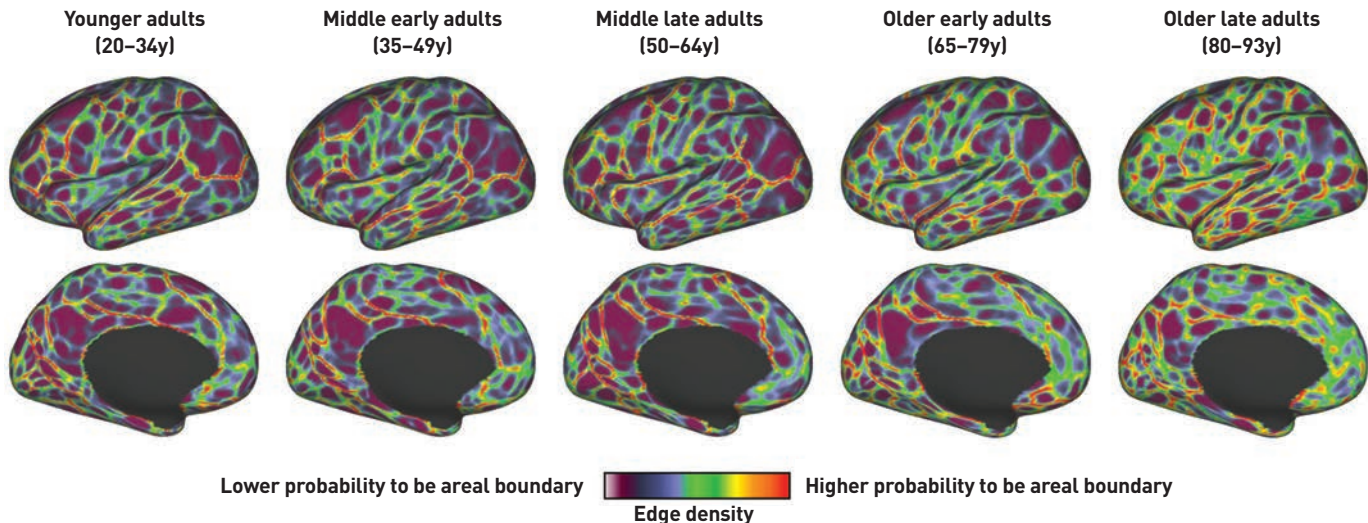
In earlier studies, Dr. Wig's lab reported that the brain's networks become less isolated from one another with increasing age, and that this 'network de-segregation' is associated with poorer memory. The present work replicates those findings using



Dr. Gagan Wig

more accurate characterization of brain area locations (the 'nodes' of a brain network). The work supports the idea that increasing age is associated with decreased segregation of brain networks, impacting cognitive abilities.

In addition to Dr. Wig as senior author, other CVL researchers who contributed to the article describing this study, recently published in *Cerebral Cortex*, include Neil Savalia, Micaela Chan, Phillip Agres and Anupama Nair, all from the Cognitive Neuroimaging Laboratory directed by Dr. Wig. Funding for the study was made possible by the James S. McDonnell Foundation. ☀



School of Behavior and Brain Sciences welcomes new Dean

Dr. Steven L. Small, formerly professor of neurology at the University of California, Irvine and director and chief scientific officer of the Medical Innovation Institute at the UC Irvine School of Medicine, has accepted appointment as dean of the School of Behavioral and Brain Sciences (BBS) at The University of Texas at Dallas, and assumed the responsibilities of dean on April 15, 2019.

Small, who holds a PhD in computer science from the University of Maryland in College Park and a medical degree from the University of Rochester, has conducted extensive research on the neurobiology of language and motor skills, and the effects of stroke on these functions. His areas of expertise range from language processing and computational neuroscience to neuroimaging. His research involves direct investigation of human subjects, particularly in speech and language, and more recently clinical and fundamental neurobiological aspects of mild traumatic brain injuries such as concussions.

Small's appointment follows a period of transition in BBS following the passing in 2015 of Dr. Bert Moore, who had led the school as dean for 26 years. During the intervening time, the school has been led on an interim basis by two distinguished members of the school's faculty, first Dr. James Bartlett, Ashbel Smith Professor, followed by Dr. Margaret Owen, director of the Center for Children and Families and



Dr. Steven L. Small, the dean of the School of Behavioral and Brain Sciences

Robinson Family Professor. "Dr. Small brings a unique combination of skills to our University, as a researcher and a leader. His passion for accelerating the pace of innovation meshes with our ethos as a national research university." Said Dr. Inga Musselman, UT Dallas provost. ☀

CVL Updates

What else is happening at the Center for Vital Longevity. . .

- **Dr. Kristen Kennedy** was appointed Area Head in Cognition and Neurosciences at the School of Behavior and Brain Sciences at UTD in November 2018
- **Patricio Viera Perez**—UTD undergrad working with the Rodrigue & Kennedy Labs received an Undergraduate Research Scholar Award (\$500) and will present at the Spring URSA poster competition. His project examined the role of degradation of optic radiation tracts in predicting decline in visual and non-visual performance.
- **The Rugg lab** presented at the 26th Annual Meeting of the Cognitive Neuroscience Society meeting in San Francisco March 23–26 , 2019
- **Katie Munro** from the Park Lab presented at the Human Amyloid Imaging Conference in Miami, FL. ☀

How you can support CVL

The Center for Vital Longevity at UT Dallas is unique, pursuing critical research that contributes to innovations that will allow people to enjoy cognitive vitality throughout the entirety of their lives. Researchers at the Center are working to address one of the greatest challenges facing our society: ensuring the long-term cognitive health and vitality of our citizens.

With your help, our dedicated team can advance the frontiers of aging-mind research and make discoveries that will lead to improved health and well-being for life. Funding from donors like you supports center needs and opportunities not covered by highly-restricted federal research grants. This includes fostering the next generation of scientists—graduate students and post-doctoral fellows who embody the future of academic research, teaching, and discoveries. Give today at giving.utdallas.edu or contact Megan Harrison at 972-883-3728 or Megan.Harrison@utdallas.edu for more information on how to make a gift to the Center for Vital Longevity. ☀