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**Sent:** Monday, October 22, 2018 3:03 PM  
**To:** NDSU-EMPLOYEE-OFFICIAL@LISTSERV.NODAK.EDU  
**Subject:** RCA Update - October 22, 2018 Edition

**NDSU** OFFICE OF  
RESEARCH AND CREATIVE ACTIVITY



## RCA UPDATE

October 22, 2018

# Progress in the Cancer Fight

October is National Breast Cancer Awareness Month. Breast cancer is the most common kind of cancer in women after skin cancer and approximately 1 in 8 women born today in the United States will get breast cancer at some point. The good news is that most women can survive breast cancer if it's found and treated early, and researchers are making progress in the fight against cancer.

NDSU professors Dinesh Katti and Kalpana Katti and doctoral student Sumantra Kar's work on breast cancer has resulted in exciting new methods for determining the best treatment plan for each patient. The team's research involves in vitro testbeds where metastasized stage cancer tumors at bone site can be grown in the laboratory. Triple negative breast cancer is often incurable when the metastasis to bone has occurred and traditional anticancer drugs are ineffective in treating it. By creating a duplicate of a metastasized tumor outside of the patient's body, the most effective treatments can be determined and then delivered to the patient. The use of testbeds brings great opportunities because at this stage of cancer human samples are hard to obtain as patients are typically in hospice care.

The group published an article this month about how infrared spectroscopy can be used as a new tool to evaluate the growth of breast cancer tumors at metastasis stage. Infrared spectroscopy has been previously used for disease diagnosis, but it has never been used for evaluation of metastasis growth in human breast cancer. One advantage of infrared spectroscopy is that it is non-invasive. By using remote fiber optics, it could eventually make biopsies unnecessary.

Learn more about this exciting new cancer research occurring at NDSU: [Fourier transform infrared spectroscopy based spectral biomarkers of metastasized breast cancer progression.](#)

To learn about how you can help breast cancer research and be proactive about

your own health, visit the [National Breast Cancer Foundation website](#).

## Meet NDSU's New Assistant Professors

Throughout the year, RCA will feature new assistant professors. Full profiles are available on the [RCA website](#).

### Bong-Jin Choi, Ph.D.

**Statistics and Public Health**

**What are your primary research and scholarly interests?**

Big Health Care Data Analysis, Cancer Research, Data Mining, Machine Learning, Computational Statistics.

**Where are you from and where did you pursue your education?**

I am originally from South Korea. I earned B.S. in computer science, and M.A. and Ph.D. in Statistics from University of South Florida, Tampa.

**What excites you about NDSU?**

Students, Faculties, and all other people!

**What motivates you?**

Finding the best solution for cancer patients and public health issues using statistical approaches.

*[Read more about Bong-Jin >>](#)*



### James Caton, Ph.D.

**Agribusiness and Applied Economics**

**What are your primary research and scholarly interests?**

I research entrepreneurship, which is the study of action that intended to create value. I am especially interested in the role and structure of innovation and creativity within a competitive environment.

**Where are you from and where did you pursue your education?**

I completed a B.A. in History from Humboldt State University, an M.A. in Economics from San Jose State University, and my Ph.D. in Economics from George Mason University.

**What excites you about NDSU?**

I find that the faculty here are open to collaborating, especially in regard to providing opportunities for students. Most professors that I have met are happy to return the favor if you put a good foot forward.

**What motivates you?**

I think we should take great care in how we model the world and recognize our influence in it. A theory of entrepreneurship brings together these factors, whether the concern is of inherent scarcity of time and resources or of the dynamic structures that arise in the course of local interaction, serving as social scaffolding.

*[Read more about James >>](#)*



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## FEATURED RESOURCE

If you are curious about the NIH grant application review process and want to generate ideas on how to enhance your proposals, the NIH Center for Scientific Review (NIH CSR) created a [video](#) for investigators who are looking to learn more about the process. An additional [video](#) includes 10 experts from NIH CSR that answer the top 10 peer review questions applicants ask. Questions include:

*What are the biggest problems reviewers find in applications?, What do you mean by scientific premise or rigor?, I addressed concerns from prior critiques and my score got worse. Why?, and What is the difference between significance and overall impact?*

For more information, see the [NIH CSR Peer Review video website](#).

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Looking for  
Collaborators?  
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In Search of  
Equipment?  
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## Amazon / Amazon Web Services: Machine Learning Research

The Amazon Web Services (AWS) [Machine Learning Research Awards](#) program funds university departments, faculty, PhD students, and post-docs that are conducting novel research in machine learning (ML). AWS's goal is to accelerate the development of innovative algorithms, publications, and source code across a wide variety of ML applications and focus areas. The award package can be provided to an individual PI with a team of students/post-docs, or it can be awarded to a department/program head for distribution.

*Applications accepted continuously*

[Track on Pivot >>](#)

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## American Educational Research Association: Education Research using Statistical / Quantitative Methods

The [American Educational Research Association](#) (AERA) awards grants of up to \$20,000 for one-year projects, or up to \$35,000 for two-year projects. The program supports highly competitive studies using rigorous quantitative methods to examine large-scale, education-related data. This research and training program is designed to advance knowledge and build research capacity in education and STEM education and learning. The Grants Program is open to field-initiated research and welcomes proposals that:

- develop or benefit from advanced statistical or innovative quantitative methods or measures;
- analyze more than one large-scale national or international federally funded data set, or more than one statewide longitudinal data system (SLDS) or incorporate other data enhancements;
- integrate, link, or blend multiple large-scale data sources; or
- undertake replication research of major findings or major studies using large-scale, federally supported or enhanced data.

The Program encourages proposals across the life span and contexts of education and learning of relevance to STEM policy and practice. The research may focus on a wide range of topics, including but not limited to such issues as student achievement in STEM, contextual factors in education, educational participation and persistence (pre-kindergarten through graduate school), early childhood education and development, postsecondary education, and the STEM workforce and transitions. Studies that examine issues of specific racial and ethnic groups, social classes, genders, or persons with disabilities are encouraged. Proposals are encouraged from the full range of education research fields and other fields and disciplines engaged in education-related research, including economics, political science, psychology, sociology, demography, statistics, public policy, and psychometrics.

*Application deadline: January 17, 2019 (anticipated)*

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## DOC/NIST: Engineering Laboratory Grants

The U.S. Department of Commerce / National Institute of Standards and Technology (NIST) [Engineering Laboratory \(EL\) Grant Program](#) provides financial assistance consistent with the EL's mission to support research in the following fields:

- machine tool and machining process metrology;
- advanced manufacturing;
- intelligent systems and information systems integration for applications in manufacturing;
- structures, construction metrology and automation;
- inorganic materials;
- polymeric materials;
- heating, ventilation, air conditioning, and refrigeration (HVAC & R) equipment performance;
- mechanical systems and controls;
- heat transfer and alternative energy systems;
- computer integrated building processes;
- indoor air quality and ventilation;
- earthquake risk reduction for buildings and infrastructure;
- smart grid;
- windstorm impact reduction;
- applied economics; and
- fire research.

Financial support may be provided for conferences, workshops, or other technical research meetings that are relevant to the mission of EL.

*Applications accepted continuously*

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## NIH: Developing Healthy Behaviors in Children and Adolescents (R01)

This Funding Opportunity Announcement (FOA) – [PA-18-355](#) – issued by the National Institute of Nursing Research (NINR), is intended to encourage Research Project Grant (R01) applications that employ innovative research to identify mechanisms of influence and/or promote positive sustainable health behavior(s) in children and youth (birth to age 18). Positive health behaviors may include: developing healthy sleep patterns, developing effective self-regulation strategies, adaptive decision-making in risk situations, practicing proper dental hygiene, eating a balanced and nutritious diet, engaging in age-appropriate physical activity and/or participating in healthy relationships. Applications to promote positive health behavior(s) should target social and cultural contexts, including, but not limited to: schools, families, communities, population, food industry, age-appropriate learning tools and games, social media, social networking, technology and mass media.

Topics to be addressed in this announcement include:

- effective, sustainable processes for influencing young people to make healthy behavior choices;
- identification of the appropriate stage of influence for learning sustainable lifelong health behaviors;
- the role of technology and new media in promoting healthy behavior;

- identification of factors that support healthy behavior development in vulnerable populations; and
- identification of mechanisms and mediators that are common to the development of a range of habitual health behaviors.

Given the many factors involved in developing sustainable health behaviors, applications from multidisciplinary teams that include nurse scientists are strongly encouraged. The goal of this FOA is to promote research that identifies and enhances processes that promote sustainable positive behavior or changes social and cultural norms that influence health and future health behaviors.

*R01 standard deadlines: February 5, June 5, and October 5*

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## **NSF: Cultivating Cultures for Ethical STEM - Limited Submission Program**

[Limited submission grant programs](#) are those that indicate a limit on the number of proposals that may be submitted by an institution for a particular deadline. A selection process becomes necessary if more applicants express interest in applying than NDSU is allowed to submit to the grant program.

**CCE STEM: Notify RCA by 12/1/2018, 5:00 p.m. if you intend to apply.**

[Cultivating Cultures for Ethical STEM \(CCE STEM\)](#) funds research projects that identify

- factors that are effective in the formation of ethical STEM researchers and
- approaches to developing those factors in all the fields of science and engineering that NSF supports.

CCE STEM solicits proposals for research that explore the following questions: 'What constitutes responsible conduct of research (RCR), and which cultural and institutional contexts promote ethical STEM research and practice and why?' Factors one might consider include: honor codes, professional ethics codes and licensing requirements, an ethic of service and/or service learning, life-long learning requirements, curricula or memberships in organizations (e.g. Engineers without Borders) that stress responsible conduct of research, institutions that serve under-represented groups, institutions where academic and research integrity are cultivated at multiple levels, institutions that cultivate ethics across the curriculum, or programs that promote group work, or do not grade. Do certain labs have a 'culture of academic integrity'? What practices contribute to the establishment and maintenance of ethical cultures and how can these practices be transferred, extended to, and integrated into other research and learning settings? Successful proposals typically have a comparative dimension, either between or within institutional settings that differ along these or among other factors, and they specify plans for developing interventions that promote the effectiveness of identified factors.

*Application deadline: February 22, 2019*

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## NSF/AFOSR: Emerging Engineering Frontiers

The National Science Foundation (NSF) and the Air Force Office of Scientific Research (AFOSR) are funding four-year awards via the [Emerging Frontiers in Research and Innovation \(EFRI\)](#) program for interdisciplinary teams of researchers to embark on rapidly advancing frontiers of fundamental engineering research. For this solicitation, they will consider proposals that aim to investigate emerging frontiers in one of the following two research areas:

- Chromatin and Epigenetic Engineering (CEE)
- Continuum, Compliant, and Configurable Soft Robotics Engineering (C3 SoRo).

The NSF Engineering directorate will coordinate with the Biological Sciences directorate and Computer and Information Science and Engineering directorate for this initiative. EFRI seeks proposals with transformative ideas that represent an opportunity for a significant shift in fundamental engineering knowledge with a strong potential for long term impact on national needs or a grand challenge. Further information about the EFRI program may be obtained by viewing [the slides](#) from the FY18 EFRI informational webinar.

*Letters of Intent deadline: November 29, 2018*

*Preliminary proposals deadline: January 7, 2019*

*Full proposals deadline: April 25, 2019*

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## NSF Adds New Term and Condition on Harassment and Assault

Effective October 22, 2018, the National Science Foundation (NSF) has implemented a new term and condition titled “Notification Requirements Regarding Findings of Sexual Harassment, Other Forms of Harassment, or Sexual Assault”. This new term requires organizations that have funding from NSF to notify NSF of any of the following circumstances involving NSF funded PIs or co-PIs, even if such actions occurred outside the scope of the NSF award:

- findings or determinations of sexual harassment, other forms of harassment, or sexual assault;
- administrative action taken by an organization relating to harassment or sexual assault finding or investigation; or
- placement on administrative leave.

Reporting to NSF will be done by NDSU’s Authorized Organizational Representative (AOR), which is Sponsored Programs Administration (SPA). The AOR will report to NSF’s Office of Diversity and Inclusion (ODI).

Starting October 22, 2018, new NSF awards and amendments to existing awards will include and be subject to the new requirement. This new term is also a requirement for any subawardees. The full term and condition can be found in the [Federal Register Notice](#). The January 2019 version of the NSF Proposal and Award Policies and Procedures Guide (PAPPG) will be updated to include this term. Additional information can be found by reading the [FAQs](#). If you have any questions, please contact SPA ([ndsu.research@ndsu.edu](mailto:ndsu.research@ndsu.edu)).

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Are you interested in the NSF CAREER program but are not sure where to start or what is involved? This session is designed for those new to the program. It will include a program overview, proposal requirements, planning for an application, and opportunities for Q&A.

### **NSF CAREER 101**

**Tuesday, December 11, 2018 | 12-1 p.m.**

The National Science Foundation (NSF) Faculty Early Career Development ([CAREER](#)) Program is a prestigious grant award program that supports early career faculty who have the potential to serve as academic role models in research and education and to lead advances in the mission of their department or organization. Activities pursued by early-career faculty should build a firm foundation for a lifetime of leadership in integrating education and research.

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## **Aldevron Breakthrough Symposium**

Aldevron is hosting the first-ever [Breakthrough Symposium](#) November 6-7, 2018, at the Hilton Garden Inn. This event is bringing together individuals and organizations that lead the biotechnology community and provides an opportunity for participants to network with these thought leaders.

**Aldevron is offering complimentary [registration](#) for NDSU participants. The code is AldevNDSU.**

A full list of speakers and the schedule can be found [here](#). Below are some of the session topics:

- **Learn about the novel developments in gene therapy to treat cancer** from Laurence Cooper, CEO of Ziopharm Oncology and David Courtman, CSO of Northern Therapeutics.
- **Discover the potential for gene editing and CRISPR/Cas9** from Matthew Porteus, Associate Professor, Department of Pediatrics, the Institute of Stem Cell Biology and Regenerative Medicine at Stanford University and Kris Saha, Department of Biomedical Engineering, University of Wisconsin-Madison
- **Collaborate on the latest gene therapy manufacturing developments** with Andrew Moreo, Operations Manager, GMP and Viral Vector Core Facilities, Nationwide Children's Hospital and Anne Kantardjieff, Director of Plasmids and Small Molecules Manufacturing, bluebird bio
- **Hear about the progress in AAV gene therapy** from Luk H. Vandenberghe, Assistant Professor at Harvard Medical School and Mark Osborn, Assistant Professor, University of Minnesota
- **Be inspired by the story of Emily Whitehead** presented by Tom Whitehead, Emily's father and the co-founder of the Emily Whitehead Foundation.

Tours of Aldevron's new facility will also be offered.

Please contact the NDSU Research Development office ([ndsu.researchdev@ndsu.edu](mailto:ndsu.researchdev@ndsu.edu)) if you have any questions.

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Have questions, ideas, or suggestions for the RCA Update?

[Contact Us](#)



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*The Office of Research and Creative Activity (RCA) sends weekly emails to NDSU faculty and staff to provide current information on various topics including funding opportunities, grant program changes, research resources, deadlines, notices, and training.*

*You are receiving this notification through the NDSU official employee listserv or sub-list. The official listserv refreshes after each pay period.*

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