# Call For Proposals

# NJIT LRI Faculty Seed Grant Awards – 2018-19

### Proposal Submission Deadline to LRI: September 5, 2018

**Purpose:**

NJIT "2020 Vision" strategic plan targets on substantial increase in academic research and external funding with faculty and student professional development. The purpose of the NJIT LRI Faculty Seed Grant (LRI FSG) initiative is to promote academic research that is aligned with the mission and research agenda of LRI by providing seed funding to obtain preliminary results or establish hypotheses for developing future grant proposals for submission to external funding agencies. The LRI 2018-2019 Research Agenda is to address the societal challenges of aging population, or more generalized, to help special-needs populations, as outlined in the attachment.

**Review Process and Criterion:**

All Proposals will be reviewed by the Executive Committee of Leir Research Institute. Review criterion primarily includes the scientific merit of the proposal, potential of external funding, and the fit to the mission and research agenda of LRI. Collaborative proposals that take a data-driven approach are especially encouraged. Additional criterion includes significance of project goals, emerging trends towards developing critical mass in key areas, justification of internal funding, expected outcomes, and faculty expertise.

It is expected that about five LRI FSG awards will be made this year. Funding is arranged through LRI and the Offices of Research. Among them, four funded projects will be in the scope of LRI 2018-2019 Research Agenda, and the other project can be any topic aligned with the mission of LRI.

**Other Requirements:** The proposal will describe the specific external funding opportunities with URL information, to which the faculty receive the LRI FSG awards will submit a full proposal within six months from the end date of the award. They will also participate in LRI Showcases and Conference, and the NJIT Faculty Research Showcase and Panel Discussion events in Spring semester.

**Eligibility and Type of Awards:**

NJIT full-time faculty with specific research initiative to enhance the critical mass in key and emerging areas may apply to LRI FSG program for internal funding with a budget of $7500 per project over the FY18 ending June 30, 2018. Projects with large scope can be considered at the funding level of $10,000 subject to availability of funds.

Projects funded by FSG are not eligible to receive another FSG as the intent of internal seed funding is to facilitate initial research towards obtaining external funds to pursue research.

Allowable Expenses include Project supplies and small equipment, travel to conferences and/or funding agencies, travel expenses for funding agency people to visit NJIT, student hourly wages. Faculty summer salary, AY release and any stipend are not permitted in the budget.

**Deadlines:**

CFP Announcement: July 6, 2018

FSG Proposal Due in LRI: September 5, 2018

Institutional Review and Announcement of Awards: September 21, 2018

Period of Award: October 1, 2017– June 30, 2018 (no extension will be available)

**Submission Guidelines**:

The submission shall be made by an email to Dr. Yi Chen (yi.chen@njit.edu) entitled "LRI Seed Grant Proposal". A receipt will be sent by September 6th, 2018. If you do not receive a receipt by September 7th, please inquire to confirm that your proposal is received to ensure that it will be considered.

The required LRI FSG Proposal Format is described below. The main proposal (sections 2-7 in the required FSG proposal format below) is limited to 5 pages with single spaced 12 point font size. The page limit does not include the cover sheet, budget and budget justification (maximum one page) and list of references (maximum one page). In addition up to 2 pages of biographical sketch and 1 page of current and pending support are required for PI and each investigator. Please see the proposal format guidelines below.

The main proposal should have the following sections:

1. Cover Sheet:

       Title of the Project

       Principal and Co-Principal Investigators

       Department

       College

       Date Submitted

       PI and Co-PI (if multiple investigators) Signatures

2. Abstract (Maximum 250 words; Non-IP for public dissemination):

   (Please summarize briefly on):

   a. Project Goal(s)

   b. Significance

   c. Expected Outcomes

   d. Justification of Internal Funding

3. Specific Objectives

4. Methods and Procedures

5. Evaluation and Deliverables

6. Future Plans

   (Describe the specific external funding opportunities with URL information, to which the faculty receive the LRI FSG awards will submit a full proposal within six months from the end date of the award. Also describe how the project funding with the deliverables will help in future proposal submissions, enhancing the research synergy, and obtaining external funds)

7. Justification of Internal Funding

   (Describe what other funds are available and why additional internal funding is needed)

8. Budget and Budget Justification (maximum 1 page)

9. References (maximum 1 page)

10. Appendix (for PI and each Co-PI/Investigator):

   a. PI Biographical Sketch (NSF/NIH or Federal Agency Format; maximum 2 pages per investigator)

   b. Other Grant Support (maximum 1 page per investigator; summarize specific project goal(s) for each grant and any overlap with this proposal)

Any inquiry about the seed grants should be directed to Dr. Yi Chen (yi.chen@njit.edu) with email entitled "LRI Seed Grant Inquiries".

# Leir Research Institute for Business, Technology and Society
## Year One Research Agenda

### A. Addressing the Societal Challenge of Aging Population

The year 2030 marks an important demographic turning point in U.S. history according to the U.S. Census Bureau's 2017 National Population Projections. By 2030, all baby boomers will be older than age 65. This will expand the size of the older population so that 1 in every 5 residents will be retirement age. As the population ages, the ratio of older adults to working-age adults, also known as the old-age dependency ratio, is projected to rise. By 2020, there will be about three-and-a-half working-age adults for every retirement-age person. By 2060, that ratio will fall to just two-and-a-half working-age adults for every retirement-age person [1]. In fact, many other countries in Asia and Europe are also facing the same situation. The change of the demographics will have a lot of social implications, such as increases in the health-care costs and higher pension costs. Is our society prepared for addressing the needs from the aging population? What is the current status, what are the needs, and what are the gaps? To be better prepared for the era of increasing aging population, investigations in many aspects are demanded, such as some examples listed below.

1. **Combating Loneliness:** The increased mortality risk of loneliness is comparable to that from smoking. And loneliness is about twice as dangerous as obesity [2]. Loneliness has doubled: 40 percent of adults in two recent surveys said they were lonely, up from 20 percent in the 1980s. Older people highly likely to experience loneliness. Studies are needed to assess current situation, understand the needs, and provide social support and interventions. For instance, how IoT and social media can build communities for emotional support?
2. **Promoting Healthy Lifestyle:** Smart health is about maintain a healthy lifestyle, manage chronic disease. How can we use IoT, social media, smart phones, gamification to promote healthy lifestyle and active life?
3. **Surveillance for Early Warning:** Leveraging smart phone and IoT to provide real-time monitoring of daily activities for surveillance with the goal of prevention and timely detection of disease onset without high cost associated with nursing homes?
    a. **Mobile Health.** We will exploit data from IoT, wearables for real-time preventative medicine.
    b. **Emergency Response:** how to use smart phone to achieve situation awareness? We need to develop just-in-time training and trustworthy telemetry.
4. **Addressing the Needs of Using Internet and Phones:** Most of us use Internet and phones for information seeking, entertainment and shopping. Are there sufficient content to address the needs of older people? Are those Internet websites or mobile phone apps user-friendly to older people? How to provide assistive technology to improve information accessibility on Internet and Phones?
5. **Addressing the Transportation Needs:** Older people may rely more on public transportation, car services over self-driving. What would be the implications the transportation industry? Also, how to develop technologies for smart driving cars, which will be extremely helpful to older people (and in general people with mobility disadvantages).
6. **Finance Issues:** The report from the Trustees for Social Security released on June 5, 2018 shows an increasing deficit. How to address the problem via policy changing? How to prevent older people facing abrupt cuts? How to help older people with insufficient financial support? In order to adapt to their increasingly aging populations, many countries have raised the retirement age,

reduced pension benefits, and have started spending more on care of older people. What are the implications? For instance, the workplace ageism, financial security of some groups.

7. **Working Force:** Analyze the working force of older adults' profile, and design strategies and new career paths that maximize the benefits to both individuals and to the corporation. Partner with big companies for funding and combating the issues with the ageing work forces. Continued education for older adults to enhance the quality of work life.

8. **Comparative Studies:** Studies long term care solutions by other countries and the applications to US.

9. **Addressing Age-Related Disorders:** There are many typical age-related disorders, including cardiovascular diseases such as stroke and heart attacks, eye disorders and cancer....wet age-related macular degeneration, and prostate and lung cancer. Healthcare analytics and decision support of these diseases are important for the increasing population of older people.

There are many societal challenges for the aging population. Addressing these challenges require collaboration of people with background in healthcare, behavior science, marketing, economics, computer science, and engineering.

B. **Generalized Research Agenda: Addressing the Disparity Issues and Helping Special-Needs Populations**

There are populations that have special-needs due to language barrier, race, gender, disability (e.g. vision/hearing impaired, mobility disadvantaged, etc.), people with substance abuse, and so on. Many research questions that are relevant to older adults outlined above are relevant to special-needs populations too.

There are many potential funding opportunities on these topics, including, but not limited to:

- NSF Smart and Connected Health (SCH) https://www.nsf.gov/pubs/2018/nsf18541/nsf18541.htm "Another key component of this transformation of health involves how we support and care for aging populations."

- Funding opportunities from NIH National Institute on Aging https://www.nia.nih.gov/research/grants-funding

- NSF Growing Convergence Research https://www.nsf.gov/pubs/2018/nsf18058/nsf18058.jsp

References

[1] https://www.census.gov/newsroom/press-releases/2018/cb18-41-population-projections.html
[2] http://www.slate.com/articles/health_and_science/medical_examiner/2013/08/dangers_of_loneliness_social_isolation_is_deadlier_than_obesity.html