

## **Call for Proposals- NYU-AIG Partnership on Global Resilience**

On behalf of the NYU-AIG Partnership on Innovation for Global Resilience, we invite faculty to submit research proposals. This call for proposals lists various research topics of interest to the AIG team. This list is indicative but not exhaustive. Broader out-of-the-box ideas that would impact risk taking, mitigation, transfer, or adaptation would be welcomed and appreciated.

The NYU-AIG program is a 5 year joint collaborative research program started in 2014 led by Paul Horn, Senior Vice Provost for Research, NYU and Siddhartha Dalal, Chief Data Scientist, AIG. Projects are typically in the range of \$100,000 per year. Proposals should indicate the likely time frame; we are looking for a mix of projects from those with applications in 12-18 months out to 5 years. We are also seeking both projects that involve new analytical methods and those that are creating specific new technology for transfer to AIG. Arrangements can be made for AIG to support students on AIG premises to use AIG data in applications; we are interested in this as means of technology transfer.

The spring 2015 deadline for submitting grant applications is Friday, April 10, 2015. An initial selection of projects will be made by the 3<sup>rd</sup> week of May 2014. We are explicitly looking for proposals that have the potential to create a big transformational impact. Screening of proposals will involve discussions between the corresponding NYU and AIG working teams based on the goals of the project, availability of data and other resources, and milestones, etc. For further information, please contact Alan Kantrow, NYU Director of the NYU-AIG partnership [alan@thegovlab.org](mailto:alan@thegovlab.org) or AIG Program Director, Martin Moore [martin.moore@aig.com](mailto:martin.moore@aig.com). Please send all grant applications to Merve Mahmutoglu at [nmm412@nyu.edu](mailto:nmm412@nyu.edu).

### **Examples of Areas of interest to AIG**

#### **Computing and Predictive Analysis:**

1. Analysis of multi-modal data to identify losses using text, images, and satellite remote sensing; modeling of losses from imagery before and after catastrophic events such as hurricanes or floods.
2. Prediction and quantification of supply chain risks, such as network methods to identify choke points in supply chains, ways of scaling this analysis to global manufacturing, and analysis of historical crisis data in manufacturing after catastrophes, both natural disasters and man-made obstructions.
3. The use of crowd sourcing, especially crowds of experts, for accurate predictions of behavior, loss reserves, regulations, etc. Prediction markets and others are related to this. Predicting risk in areas such as health, casualty, or retirement based on direct observation of human behaviors through sensors, including the use of telematics.

#### **Economics/Finance:**

1. Innovative Portfolio optimization techniques for investment, and strategies for converting insured reserves to marketable securities for risk transfer and balance sheet liabilities.

2. Forecasting of volatility, prediction analytics for financial, insurance risks, and structural preference models for individuals.
3. CCAR Stress testing. Novel methods for assessing outcomes of CCAR adverse and severely adverse macro events provided by Federal Reserve.
4. Modeling of customer/intermediary (e.g, brokers) behavior, creation of incentives to influence the intermediaries, etc.
5. Incentives and interventions to change behaviors of consumers, claims adjustors, and underwriters using behavioral experiments.
6. Currently much work on actuarial loss predictions is based on aggregated macro models. Research on creation of micro loss policy models, which can be aggregated at macro level models with better predictive ability, compared to previous models.
7. Assessing the impact of alternative safety investment strategies to maximize the marginal impact of the next dollar spent on safety improvement.

### **Risk Measurement, Selection and Mitigation:**

1. Cyber risk measurement, and tools and technologies to decrease cyber risk, mitigate damages, and predict losses better. Methods to estimate liability risks from intrusion including modeling tools, defensive technologies, and overall resistant process design.
2. Risk Maps: Use of existing databases to prepare risk maps for any or all kinds of risks: accident, crime, flooding, etc. for different geospatial areas. Would involve creation of different indexes, validation, etc.
3. Sensors and mobile communications platforms with potential for reducing risks (e.g., alert systems which would reduce the risks of job related accidents in construction and in completed buildings, telematics for automobile accidents, etc.).
4. Sensors to recognize risks from natural disasters such as earthquakes or hurricanes, as they affect structures.

### **Advances in legal and health arena:**

1. Health: Advances in technology which improve health outcomes of people/society, reducing the costs of longer lasting illnesses. Identifying specific triggers, which may increase liabilities due to longer lasting injuries or sickness (e.g. worker's health), etc.
2. Technology, such as sensors, imagery, or tests, to support objective evaluation of workers' physical conditions, making it possible to compare before and after injury conditions.
3. Fast methods to evaluate the health of insurance applications that avoid the need for a physical examinations by health professionals.
4. Legal: New emerging theories that may change tort landscape in US and globally. Cost impact on risk transfer and management. Identify salient features from tort lawsuits by analyzing and predicting outcomes of legal cases.

### **Data Analytics from New and Emerging Technologies:**

1. New techniques for improving employee engagement, satisfaction and retention.

2. Harnessing the power of granular data that come out of smarter devices such as mobile phones, sensor networks, and wearable computing devices.

### **Format to submit initial proposals**

The proposals need not be restricted to the above list, but rather broader ideas would be welcomed and appreciated. Please make sure that proposals are **no more than 2-3 pages long** addressing the following questions. Also, please include couple of paragraphs of relevant bio-sketch of the proposing team members.

- What are you trying to do? Articulate your objectives using absolutely no jargon.
- How is it done today, and what are the limits of current practice?
- What's new in your approach and why do you think it will be successful?
- Who cares? If you're successful, what difference will it make to AIG, and to the world at large in resilience, risk mitigation and risk adaptation?
- What are the risks and the payoffs?
- How much will it cost? How long will it take?
- What are the midterm and final "exams" to check for success?