U-LINK (University of Miami - Laboratory for INtegrative Knowledge) Doctoral Student Program

Important Dates

- Online applications due by 5:00pm on October 31, 2019

Earliest Start Date

- January 1st, 2019

Background and Objectives: The world's most challenging problems are usually complex. Fully addressing the issues associated with climate change, for example, requires understanding weather patterns, the relationship of health and disease to environment/diet, coastal architecture, energy policy, city planning, human behavior, truth in media, social justice, international relations, big data, and many other fields. A key goal of the University of Miami (UM) is to serve as a center of inquiry in which scholars from multiple disciplines can work together to pursue innovation, in areas where the world needs them most. (See MacArthur Foundation's 100&Change for inspiration and examples: (https://www.macfound.org/programs/100change/). UM's diversity, found in our 11 schools and colleges, provides unique advantages for the next generation of scholars to explore and successfully address problems that span multiple disciplines.

The University of Miami Laboratory for INtegrative Knowledge (U-LINK; ulink.miami.edu/) seeks applications from doctoral students who desire to pursue such problem-based interdisciplinary research on Phase II U-LINK teams.

This year, three Phase II teams are seeking applications for doctoral students to provide support on their Phase II work (see project descriptions at the bottom of this announcement):

1. Countering online networked extremist conspiracy theories
2. Hyperlocalism: Transforming the paradigm for climate adaptation
3. Next generation of coastal structures: Feasibility, quantification, and optimization

The U-LINK Doctoral Student Program is an excellent opportunity for innovative doctoral students interested in working in a dynamic, interdisciplinary environment. The fellowship is comprised of a stipend (consistent with the student's corresponding school/college) for a 12-month period (beginning January 1 each year) plus 80% health insurance subsidy while a student is supported on a Phase II team. The awardee will remain a fellow for as long as the Phase II team is funded (up to two years). That is, if the team is not supported for year two funding, the mentor is responsible for financially supporting the student. Phase II teams are funded for 12 months (starting January 1) and are eligible for a second year of funding after the completion of the first year. Note that the fellow must remain in good standing with the program and earn academic credit hours toward their degree at the University to remain a fellow.

Eligibility: The U-LINK Doctoral Student Program is intended for exceptional graduate students already enrolled in a University of Miami doctoral program and highly committed to engaging in problem-based interdisciplinary research. Students must be available and commit to working on

the project for two years (Phase II teams can receive up to two years of funding, during which time the U-LINK doctoral student will be supported). For example, students whose graduation date is less than two years from the January 1 start date will not be eligible to serve on teams. Applicants must be currently in good standing with their graduate program.

Application Process: Candidates interested in working with Phase II teams should read the descriptions of each of the funded projects to determine if their interests and skills align with the mission of the team. If you find a team for which you'd be a good fit, fill out the online application (detailed below). You will be asked to select which of the three teams you would like to work with. Phase II teams will review applications, interview candidates (at the discretion of the teams) and select their awardee (each team will select only one U-LINK Doctoral Student).

Applications should be submitted via the InfoReady Review website at the following link: (http://miami.infoready4.com#competitionDetail/1797794) by October 31, 2019.

To apply to the Fellowship in the InfoReady Review website, use the following steps:

1. Go to https://miami.infoready4.com
2. Log in by using your UM Single Sign-On credentials
3. Search for the "U-LINK (University of Miami - Laboratory for INtegrative Knowledge) Doctoral Student Program"
4. Select the competition
5. Click on "Submit Application" and follow the instructions on the page
6. Once you've completed step #4, please make sure to select "Submit Application" at the bottom of the page in order to submit your application.

Application Materials:

All materials should be submitted using the following formatting guidelines:

- Font: use common font (Helvetica, Arial, or Times New Roman) at 11pt or larger, including figure legends, footnotes and captions
- Margin: at least 0.5" each side
- Single-spaced or larger

The online application includes the following:

1. Statement of Interest (Maximum 1,500 words).
    a. Why are you interested in working with this team? Consider addressing the following:
        i. Why is this problem of interest to you?
        ii. How would your experience or skills contribute to the team's work?
        iii. Why are you the best candidate to work on this Phase II team?
2. Statement of Potential Impact (Maximum 500 words)
    a. How would this experience impact/ influence your career. In other words, how will it help you reach your career goals?
3. Letter of support from your advisor/mentor. A statement from the mentor that s/he is committed to financially supporting the student in the event that Phase II grant is not funded past year 1 is required.
4. CV

5. Unofficial graduate transcript

Evaluation Criteria:

1. Fit with the Phase II team
2. Potential for a significant contribution to the team's work
3. Potential impact of the collaboration on the candidate's career

For more information, please contact: Dr. Susan Morgan, Associate Provost for Research Development and Strategy, semorgan@miami.edu, or Dr. Ali Mosser, Senior Manager for Research Support, amosser@med.miami.edu

Team Descriptions:

1. **Countering online networked extremist conspiracy theories**
   Team Members: Manohar Murthi, Electrical & Computer Engineering; Kamal Premaratne, Electrical & Computer Engineering; Michelle Seelig, Cinema and Interactive Media; John Funchion, English; Caleb Everett, Anthropology; Stefan Wuchty, Computer Science; Casey Klofstad, Political Science; Joseph Uscinski, Political Science; Lisa Baker, Richter Library

   Due to a lack of gatekeeping, misinformation can spread unimpeded on social media. This project focuses on the forms of misinformation that cause the most harm: extremist conspiracy theories (ECTs). ECTs have motivated not just incorrect beliefs, but also polarization, prejudice, criminal behavior, and political violence. An online ECT about white genocide, for example, recently motivated social media users to murder fifty people at two New Zealand mosques, eleven people in a Pittsburgh synagogue, and one mother in a California synagogue. Despite the ubiquity and consequences of online ECTs, scholars do not yet understand the links between ECT content, readers' cognitive and psychological processes, and network amplification. Moreover, scholars do not know how to design countermeasures to combat the spread of beliefs in ECTs. Our overarching goals are (1) to design a Unified Network COgnitive Virtual Ethnography Rhetorical (UNCOVER) Model that quantitatively captures the causal processes and propagation dynamics of how ECT beliefs spread in online social networks; and (2) to develop effective countermeasures to curb the spread of ECTs and mitigate their harmful effects. We take a broad approach that links ECT content, cognitive and psychological processes, and social networks in a unique model that allows for the design of effective countermeasures for stymieing ECTs. To that end, we adopt a multidisciplinary approach blending text and visual rhetorical analysis, computational and cognitive linguistics, social and behavioral science, network science, and signal and information processing.

2. **Hyperlocalism: Transforming the paradigm for climate adaptation**
   Team Members: Amy Clement, Atmospheric Science; Tyler Harrison, Communication Studies; Joanna Lombard, School of Architecture; Sam Purkis, Marine Geosciences; Gina Maranto, English; Angela Clark, Libraries

Throughout Phase I, the HyLo team identified climate adaptation initiatives locally and across the US and engaged advocacy groups working to inform and empower individuals in climate change awareness. We explored the gaps between current policy and neighborhood interests and assessed the potential impact of granular scale—hyperlocal—data, and correspondingly scaled and designed community engagement to bridge this gap. We focused on analyzing Miami's geologic, built, and social environment's risks and assets to be able to discern the potential for Hyperlocalism to move climate adaptation discourse toward a people-first perspective, and tested a method to invert dominant processes of top-down communication to bring community voices to the forefront. Building on this initial work, we are advancing our Integrated Climate Risk Assessment (ICRA) protocol through a process of analysis, engagement and evaluation with our community partners, the CLEO Institute and Catalyst Miami, Miami-Dade County and City of Miami Resilience Officers and teams, and The Nature Conservancy in Florida Cities Manager to develop an innovative and replicable model for community member and policy-maker communication. We expect the results to include new co-produced knowledge to inform climate adaptation strategies; increased coordination across key stakeholders in climate adaptation, and more effective individual, neighborhood and community climate adaptation decision-making. We believe that the Hyperlocalism methods and ICRA protocol can enable communities to develop a broader array of physical, social, and economic adaptation measures, and that this process itself can serve to strengthen existing culture and communities.

3. **Next generation of coastal structures: Feasibility, quantification, and optimization**
   Team Members: Esber Andiroglu, Civil, Architectural and Environmental Engineering; David Kelly, Economics; Joel Lamere, Architecture; Billie Lynn, Sculpture; Renato Molina, Marine Ecosystems and Society; James Sobczak, STEM librarian for Learning and Research Services Kathleen Sullivan Sealey, Biology; and Prannoy Suraneni, Civil Architectural and Environmental Engineering

   Coastal structures such as bridges, breakwaters, seawalls, and causeways will be critical in mitigating the effect of climate change. A systemic and comprehensive approach to coastal structure design should capture both the overall community-specific dynamics, as well as functional criteria of cost, ecology, and livability. The U-LINK project Next Generation Coastal Structures. Phase I built an integrated research team that addressed the multi-dimensional functionality of human-altered shorelines. Models of next generation coastal structures were visualized, and 3D-printed, based on site visits, stakeholder discussions, and preliminary research on housing prices and on biophilic concrete. Phase II will adapt model designs from Phase to the particulars of carefully chosen test sites, and perform several site-specific measurements to develop prototypes which improve upon currently used designs. Design and material modifications will be carried out in response to the measurement outputs which will then be used to optimize these structures. The ultimate deliverable from this project will be the development of multi-functional, optimized, next generation coastal structures with demonstrated performance significantly better than currently existing coastal structures. The team will then work closely with city officials to ensure that these designs can be field deployed in the near future.