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# SESYNC-Microsoft Postdoctoral Fellowship

## Big Data and Socio-Environmental Sustainability

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**Application Deadline: May 18, 2017**

The National Socio-Environmental Synthesis Center (SESYNC) and Microsoft invite applications from early career scholars for 2-year postdoctoral fellowships that begin in August 2017. Each fellow is in residence at SESYNC in Annapolis, MD, is a full participant in [SESYNC's Postdoctoral Immersion Program](#), and has a Collaborating Research Mentor from Microsoft. Depending on the project proposed, the fellow may invite a second mentor of their choosing that extends the fellow's network of collaborators. This mentor may be affiliated with any organization or institution. Travel funds are available for the fellow to visit with their mentor(s) and to attend scientific conferences.

This opportunity is open to applicants who have completed their PhD in a relevant field within the last 2 years (no later than July 15, 2017 and no earlier than August 15, 2015). Applicants are expected to propose ideas for a data synthesis or modeling project that addresses an important environmental question that makes use of one or more assets of Microsoft related environmental projects and collaborations. Preference will be given to projects that have the potential to advance understanding of socio-environmental systems and thus projects that involve the incorporation of social, health or any human dimensions aspects in addition to environmental data are encouraged.

The SESYNC Immersion program is designed to advance the fellows' understanding of theories and methods foundational to research on socio-environmental (S-E) systems and to advance their understanding of the science-policy nexus. Successful candidates will have made clear in their applications how progress on their proposed projects may benefit from participation in the Immersion program and/or how the program aligns with their specific career objectives.

**Geospatial Socio-Environmental research.** New land cover data at high spatial and temporal resolution offers the potential to improve understanding of landscape processes and to empower local planners and managers in identifying risks and prioritizing responses. When synthesized with other data and used to drive models, data on land cover change can be used to estimate future impacts, prioritize regions for conservation or restoration, track implementation or enforcement of environmental offset commitments, carry out carbon accounting, etc. In collaboration with Microsoft, the Chesapeake Conservancy and the Washington State Department of Fish and Wildlife have pioneered the production of high accuracy, high-resolution (1 m) land cover datasets for the Chesapeake Bay and Puget Sound watersheds. Using government datasets and advanced machine learning techniques, these land cover products have close to a 90% accuracy level (compared to 78% for the 30-m resolution NLCD that is widely used).

Applications are invited for a two-year postdoctoral project that leverages these high-resolution land cover data to address one or more important socio-environmental research questions. Priority will be given to projects that incorporate other social and environmental data sets, either from previously funded investigator-led studies or from government sources. Projects that make cross-site comparisons between the two regions or can demonstrate potential future applications beyond one region are preferred. While advancing fundamental knowledge should be the primary goal of the project, projects that could simultaneously result in tools or knowledge beneficial to local agencies and stakeholders are encouraged.

**Project Premonition and Socio-Environmental Systems.** Working with academic partners, Microsoft's Project Premonition designed mosquito traps with smart cells that can identify mosquito species based on wing movements and then capture those of interest along with key environmental data including time, temperature and light levels ( [www.microsoft.com/en-us/research/project/project-premonition](http://www.microsoft.com/en-us/research/project/project-premonition)). Using state-of-the-art metagenomics methods and cloud-scale algorithms, blood from these mosquitos is analyzed to determine animals they have bitten and pathogens they may have encountered. Researchers are using this system to track the spread of viruses and detect emerging pathogens but there are many other research opportunities this system could enable and that this postdoctoral opportunity is meant to exploit. Traps have been deployed in several settings and a large amount of data will be forthcoming that can be used to address a very broad range of socio-environmental questions.

Applications are invited for two-year postdoctoral projects that leverage these data. Particular areas of interest include: exploration of host diversity or population dynamics as they relate to land cover and microclimates, human disturbance gradients, and other factors. Priority will be given to projects that incorporate other social, human dimensions and environmental data sets, either from previously funded investigator-led studies or from government sources. While advancing fundamental knowledge should be the primary goal of the project, projects that could simultaneously result in tools or knowledge beneficial to the public, local agencies and stakeholders are encouraged.

**Applying is a two-stage process: a qualification step and a proposal submission step.**

**To Qualify to Apply**, submit a combined PDF of your C.V. and a detailed cover letter to [SESYNC's webform](#) [1]. The letter should: 1) outline one or more potential research projects (<1 page total for both ideas together); 2) provide in detail the qualifications that make the candidate competitive for this opportunity (< ½ page); and, 3) how the project and an interdisciplinary fellowship will advance the candidate's career trajectory (½ page).

**Qualifying Applications may be submitted until 5:00 pm Eastern Time on May 18, 2017;** applicants will be informed within one week if they are invited to submit a full proposal and if so, will be given instructions.

Invited full proposals (< 5 pages) are due June 22, 2017 at 5:00 pm ET.

Invited applicants that have not yet received their PhD are required to submit a letter from their graduate advisor along with the full proposal. The letter should verify expectations for date of degree completion. Invited applicants will also need to arrange to have two letters of reference sent directly from referee to SESYNC by the June 15 deadline.

**Submission Instructions:** [sesync.us/bigdata](http://sesync.us/bigdata)

**[1] Source URL:**

[http://www.sesync.org/opportunities/fellowships-postdoctoral-fellowships/sesync-microsoft-postdoctoral-fellowship-big- data](http://www.sesync.org/opportunities/fellowships-postdoctoral-fellowships/sesync-microsoft-postdoctoral-fellowship-big-data)

SESYNC and The University of Maryland are Equal Opportunity Employers.

Minorities and Women Are Encouraged to Apply.

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