Open postdoctoral position through the SPIRES lab, directed by Professor Luke Sanford at the Yale School of the Environment

The SPIRES (Study of Policy and Institutions using Remote Environmental Sensing) lab is a research institute focused on environmental political economy and environmental data science at the Yale School of the Environment. We seek to leverage new, high dimensional sources of data including satellite imagery and text to answer questions at the frontier of human well-being, climate change, environmental policy, and economic development. We develop and implement machine learning methods paired with statistical causal inference to answer challenging policy questions, often in non-experimental settings. Our group includes students from the School of Environment and Forest School, the Political Science Department, the Statistics and Data Science department, the Math department, and the Engineering department.

We are seeking a diverse pool of applicants who wish to join a collaborative and constructive community that values interdisciplinary, problem-driven research. Postdoctoral fellows take on leadership roles in the group with the possibility to mentor other lab members at the PhD, Masters, and Undergraduate levels.

Postdoctoral positions are for one year with the option to renew for a second year contingent on performance and funding. Postdoctoral salaries are determined by the Yale Office for Postdoctoral Affairs, but are $56,448 at a minimum in the first year, and increase with experience. Postdoctoral associates will have funded research assistants and a research budget and are expected to spend a minimum of 50% of their time on collaborative, lab projects (led or co-led by the postdoc).

The principal job of the postdoctoral fellow is to design, implement, analyze and write quantitatively rigorous studies in the areas of environmental political economy and environmental data science.

Mentorship Structure
The postdoctoral fellow will be primarily supervised by Prof. Luke Sanford and will collaborate with other Postdoctoral Fellows, PhD, Masters, and undergraduate students. My mentorship style will adapt to fit the professional interests and goals of the Postdoctoral Associate. One of the goals of the SPIRES lab is to support a diverse community of scholars by providing mentorship and support for academically under-represented groups.

Qualifications:

- Completion of all doctoral requirements within the past three years and no later than the start date.
- Statistical and data analytic skills in areas including causal inference, machine learning, and methods for geospatial data, familiarity with remote sensing or remotely sensed data products is a plus

- Candidates with knowledge of environmental politics, development economics, ecosystem or forest ecology, or related fields will be preferred
- Strong knowledge of R or Python
- Demonstrated record of excellent writing
- Is committed to fostering an inclusive and welcoming lab structure through mentoring, feedback, and collaboration

Candidates will be evaluated according to their:
- Scientific potential to advance the project
- Potential contribution to the SPIRES lab team and the Yale School of the Environment
- Committment to pursuing research and mentorship which has the potential to improve the well-being of under-priveleged members of society and the research community

Timeline:
- Review of applications will begin on December 15, 2022
- Finalists will be asked to submit letters of recommendation and may be asked to interview
- I expect to notify finalists in mid-January and final selections by February 1

Applications should include:
1. A personal statement explaining your motivation to join the SPIRES Lab as a postdoctoral associate (500 Words Max)
2. Short responses (300 words or less) to the following:
   a) Describe your dissertation and research agenda
   b) In what ways have you contributed towards and/or demonstrated a commitment to inclusion, equity, and diversity through your academic career, and how do you plan to advance these commitments professionally?
3. Your CV
4. One representative writing sample
5. Graduate school transcripts
6. Names and contact information for three references

Please email application materials to luke.sanford@yale.edu as a single .pdf file

See below for the specific existing projects on which a postdoctoral fellow may take a leadership role:

Sequestering Carbon

- The postdoctoral associate will primarily be associated with the project "Sequestering Carbon through Protection and Production: A Case Study of Industrial Reforestation in Mata Atlantica, Brazil" funded by the Yale Center for Natural Carbon Capture. The postdoc will be responsible for combining social, economic, and political data with remotely sensed data products including

those produced by MapBiomas to understand the human drivers of carbon sequestration potential in the study area. The position is for one year, renewable for a second year.

- Specific tasks:
    - Work with spatial datasets including data on land cover and land use change, spatial administrative data, and geo-located ground-truth data.
    - Collaborate with forest ecologists and industrial ecologists, co-mentor one or more research assistants to merge and analyze relevant data.
    - Conduct statistical tests using geo-spatial, temporal data.
    - Co-author relevant academic publications targeting general interest and political science journals.

Building a Remote Sensing Pipeline for Social Scientists

The postdoctoral associate will focus on a lab-wide project which is in the process of seeking large external grants. We aim to build a set of integrated R packages to encode best practices for using remote sensing for impact evaluation, and to make these tools available to everyone. This multi-year project will include writing papers on open machine learning and causal inference problems associated with using remote sensing data for impact evaluations and developing and testing software which is accessible and user-friendly.

- Specific tasks:
    - Contribute to the characterization and solutions to open problems in causal inference and remote sensing.
    - Develop machine learning tools which work well on a wide variety of measurement tasks in different domains.
    - Develop and test new R packages for labeling, training, and using remote sensing data
    - Co-author relevant academic publications targeting general interest and political science journals.