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Post-Doc Research Fellowship at Cornell University

Multi-Scale Air Quality -- Health Risk Modeling

and Management Optimization

A postdoctoral research opportunity in **Multi-Scale Air Quality -- Health Risk Modeling and Management Optimization** is currently available for motivated, post-graduate (PhD) interested in being part of a collaborative, interdisciplinary research with the **Cornell University Transportation and Environment/Energy Systems (CUTES)** Group. The CUTES group is a cross-disciplinary research team that takes innovative systems informatics-analytics approaches to solving infrastructure and its associated environment/health/economics and management problems. The Group involves faculty and grad/undergrad students from Civil and Environmental Engineering, Statistics, Computer Science, Applied Economics and Management, Systems Engineering, and Earth and Atmospheric Science. Research projects in the Group expose researchers to solving the infrastructure-related environment/health problems by focusing on the nexus of infrastructure, air quality, health risks, and climate change concerns. The appointment will be served with the School of Civil and Environmental Engineering at Cornell University in Ithaca NY, with potential interactions with other Cornell units including: Atkinson Center for a Sustainable Future (ACSF, http://www.acsf.cornell.edu/), Cornell NYC Tech (http://tech.cornell.edu/), Cornell Program in Infrastructure Policy (CPIP, http://www.human.cornell.edu/pam/cpip/), and Cornell Institute of Public Affairs (CIPA, http://www.cipa.cornell.edu/), etc.

CUTES research focuses on the characterization, quantification, management optimization, and policy/strategy design for cost-effective and equitable control of adverse health effects due to environmental pollutants from infrastructure such as transportation and power systems. Results of this research are used to inform the public and decision makers at local, national and international levels for infrastructure investment, planning, and operations management, environmental assessments and plan for air quality standards and public health. CUTES aims to formulate and conduct research designed to: 1) characterize the relationships between infrastructure, users, air quality, climate change, and adverse health effects; 2) model the health effects of individual major pollutants (such as ozone, nitrogen oxides, and particles) and multipollutant mixtures; 3) assess the health implication of pollutants near sources such as roads, ports, particularly for at-risk human populations who are disproportionately impacted by pollution; and 4) evaluate the air quality and health impacts of environmental policies and regulation, infrastructure policy and operations management (e.g., production and usage of alternative energy sources such as biomass) and seek management optimization and policy design towards green infrastructure for livable communities.

This research opportunity focuses on **multi-scale air quality -- health risks modeling and management optimization**. The ideal applicant will have experience with multi-scale emissions inventory estimation and air quality modeling, health risk assessment, formulation and solution of policy optimization problems, and familiarity with the quantitative assessment of environmental impacts of industrial/transportation activity. Excellence in academic writing such as journal papers and research proposals is essential. Contributing to the development of manuscripts for

submission to peer-reviewed journals and presentations to describe research methods, key findings and implications useful to inform policy-level decision making.

This will be a fantastic research experience where the post-doc fellow will work closely with faculty and graduate students in the development of AQ-Health modeling and management methodologies, resource/environmental economics models, computing software, and decision supporting systems for both government policies and firm growth strategies. The research participant will learn to: process large data sets for appropriate modeling and analyses; and further develop skills for successful manuscript preparations and reviews. The research participant will have the opportunity to interact with a multidisciplinary team of engineers, scientists, and economists. The advising faculty will have close interaction with the researchers through weekly individual meetings and research group meetings.

Qualification:

Applicants must have received a doctoral degree with a concentration on or a strong experience in Air Quality and Health Risk Modeling, AQ-Health Systems Management or Applications of Operations Research in relevant fields, or other relevant field (with an emphasis on analytical systems modeling) within five years of the desired starting date, or completion of all requirements for the degree should be expected prior to the starting date.

Excellence in academic writing such as journal papers and research proposals is essential. The fellow will be expected to develop and adapt AQ-Health Risk models, mathematical/statistical methods and techniques and/or advanced modeling tools with the aim of evaluating the environment/health impacts of infrastructure (such as transportation) plans and relevant technologies and policies. Knowledge and experience in AQ-Health risk modeling, scientific/engineering computing and programming, statistical and mathematical modeling for optimization, or training in resource/environmental economics is desired. Proficiency in certain programming language (e.g., C++/Java, Matlab, Python, etc.), statistical analysis packages (e.g., R, SAS, SPSS, GAUSS), and ArcGIS is a plus.

How to Apply:

If you are interested please contact Professor H. Oliver Gao and email your application package to: H. Oliver Gao (hg55@cornell.edu). An application should contain:
1. A cover letter.
2. CV, include complete list of publications
3. Contact information for 3 references (can be included at the end of your CV)
4. Two or three of your publications relevant to the topic
5. A research statement (e.g., previous work, future research interests and directions, and career goals, etc. 3-page maximum, single space), and
6. A transcript (electronic version will be fine)

For convenience, please use "Post-doc application—AQ" in the subject line of your email, and name your documents as: "Your First Name_Last Name-CV", "Your First Name_Last Name-ResearchStatement", and "Your First Name_Last Name-Transcript", respectively. Review of applications will start immediately and continue until the position is filled. Start date can be as soon as the fall of 2014. Initial appointment will be for one year, with possible extensions. Salary conforms the Cornell University standard.

The College of Engineering at Cornell University is an equal-opportunity affirmative-action employer. Women and minorities are encouraged to apply.