Researcher in city-scale agent-based modeling

The Sustainable Service Systems (S3) Research Group within the Energy, Climate, and Environment (ECE) Program at IIASA is actively seeking for a talented candidate to contribute to the development and expansion of our city-scale agent-based modeling framework. This role offers the opportunity to collaborate with a diverse team of international scientists who are dedicated to advancing state-of-the-art scenario modeling and assessment.

BACKGROUND

The ECE program at IIASA is dedicated to addressing complex global challenges related to energy systems, climate change, and environmental sustainability. Within the program, the cities transformation research theme focuses on understanding and assessing transformation pathways in urban areas. As part of our ongoing efforts, we are seeking a highly qualified candidate to join our team and contribute to this important research agenda.

THE ROLE

The successful candidate will join the Urban Futures Hub within the ECE Program, focusing on advancing the understanding and assessing how cities and urban systems can lead climate change mitigation and adaptation efforts from local to global scales. This role will involve contributing to the development and expansion of a city-scale agent-based model tailored to explore cities transformation pathways. Specifically, the candidate will engage in:

- Development and expansion of the BENCH agent-based model, an open-source ABM modeling framework, along with related software and datasets.
- Data gathering and complementary quantitative and qualitative analysis of various factors influencing cities transformation pathways, in particular low energy demand pathways, including individual behavioral and lifestyle changes, social and cultural dynamics, technological and infrastructural improvements and usage, and institutional and political contexts. This will involve examining policy levers and assessing their impacts on human wellbeing.
- Designing, implementing, and analyzing low energy demand scenarios, crafting narratives that incorporate the multifaceted phenomena mentioned above.
- Establishing model-to-model linkages, such as integrating sectoral demand models with Integrated Assessment Models (IAMs), providing a comprehensive understanding of the complex system.

MAIN TASKS AND RESPONSIBILITIES

- Contribute to the development of a conceptual comprehensive model of cities transformation by identifying relevant methods from the literature, sourcing appropriate data/measures from diverse sources, and implementing analysis with a high degree of rigor.
- Contribute to the development and expansion of a city-scale agent-based model, including but not limited to refining model architecture, integrating new features, and ensuring model validation.
- Collect, process, and manage large (spatial) datasets for model calibration, ex- and post-analysis, ensuring data integrity and quality throughout the process.
- Contribute to the application and development of low-energy demand scenarios, crafting narratives and conducting analyses to explore various pathways towards sustainable urban development.
- Engage in ongoing and future projects, collaborating with team members and external partners, and actively participate in external fundraising and grant applications related to cities transformation and low energy demand and their implications for broader sustainable development issues.

SKILLS, QUALIFICATIONS AND EXPERIENCE

- PhD degree (or equivalent) or master's degree (or equivalent) plus research experience in a related field of economics, energy systems, environmental science, or social science.
- Domain knowledge on climate change, energy demand, and behavioral and lifestyle change.
- Demonstrated experience in agent-based modeling.
- Proficiency in programming languages, preferably R or Python.
- Demonstrated ability to lead open-source projects, data provision and code-development, using git and GitHub.
- Practical experience with GIS software (e.g., QGIS, ArcGIS) for spatial data processing and analysis would be beneficial.
- Practical experience with participatory modeling and stakeholder engagement would be advantageous.
- Fluency in English; good presentation skills; and experience writing publications.
- IIASA offers an interdisciplinary and international workplace, and the possibility to interact with researchers of different nationalities, with strong ties to a world-wide network of research institutions engaged in environmental systems research. The successful candidate must be able to work in, and have respect for, an intercultural environment, and IIASA core values.

APPOINTMENT TERMS

The successful candidate should be available to take up the position as of 1 May 2026 (or as soon as possible thereafter). We offer an initial fixed-term, full-time employment contract for one year, with the possibility for extension thereafter.

Eligible applicants wishing to work part-time hours may be considered.

The place of work is at the IIASA premises in Laxenburg, near Vienna in Austria.

The successful candidate will be appointed in accordance with the IIASA profiles for research careers.

WE OFFER

- The possibility to contribute to environmental sciences for sustainability and global wellbeing.
- Career development perspectives.
- An international atmosphere and pleasant working environment in a historic market town surrounded by green areas.
- An attractive salary which is exempt from income tax in Austria and negotiable, based on the qualifications, skills and experience of the selected individual and *at least*
  EUR 42,374.00 for R1 researchers
  EUR 55,215.00 for R2 research scholars
  Salaries are gross per annum (subject to deductions for health insurance and/or social security).

IIASA salaries are:

- Not directly comparable with other employers in Austria, due to the unique legal status and privileges granted to IIASA.
- Subject to the principle of income aggregation

(Progressionsvorbehalt in German).

OTHER BENEFITS

- Educational subsidies for children of school age enrolled in private schools in Austria.
- A generous leave entitlement.
- Relocation allowances and paid home leave for employees hired from international locations.
- Assistance for newcomers to Austria with visa, work and residency permit applications.
- Support finding accommodation in Austria.

Further details here.

About IIASA

IIASA is committed to a working environment that promotes equality, diversity, tolerance and inclusion within its workforce. This is reflected in our IIASA core values. We encourage qualified candidates from all religious, ethnic, and social backgrounds to apply. In the case that candidates are equally qualified, preference will be given to applicants from countries where IIASA has a Member Organization.

Further Information

For further information about this opportunity please contact:

Leila Niamir S3 Senior Research Scholar

Bas van Ruijven S3 Research Group Leader

For general information about working at IIASA, please contact: recruitment@iiasa.ac.at

Applications

To apply for this opportunity, you will need to provide the following documents in English:

- A cover letter outlining your motivation for and fit to the position.
- A detailed Curriculum Vitae.
- The names, addresses (including e-mail), and telephone numbers of two reference givers.

Deadline for receipt of applications: 15 March 2026

APPLY