

# Post-Doc Vacancies in the rCOS Group

## Vacancy Announcement

United Nations University

International Institute for Software Technology

([UNU-IIST](#))

Three Postdoctoral Research Fellows

### **Model-Based Design and Verification**

The [The rCOS Team](#) at UNU-IIST is looking for three postdoctoral research fellows in the area of model-based design and verification techniques, and tool development.

<http://rcos.iist.unu.edu/rcos-postdocs-2010>

Research topics include, but are not limited to:

- Research on Formal Methods with application to Software Engineering (e.g. semantics of OO, model- and program transformation, correctness by construction, refinement).
- Formal use of UML and tool development for model-driven design and analysis.
- Specification languages for verification properties, their expressiveness and visualization.
- Efficiency of runtime monitors: analyse, visualize and improve performance of runtime monitors.
- Guided runtime verification: combine testing and runtime verification.
- Synthesize and monitor runtime checks in generated code from specifications.

### **Requirements:**

We are seeking young research scientists with (or in the process of obtaining) a PhD in computer science. The successful applicants should have background in one of the following fields: model checking, runtime verification, (model based) testing, theorem proving. OO programming experience is of advantage. Good English speaking and writing skills are necessary.

The [rCOS Modeler](#) for use case-driven design of component-based systems using UML covers both the rCOS specification language in a pre/postcondition style, and a graphical editor to develop component models. Several back-ends address verification/model checking, code generation, and test case-generation. The tool is made available as an Open Source product.

Besides research, the successful applicants will also be involved in helping to supervise postgraduate students from developing countries recruited to the project as UNU-IIST fellows, and are invited to participate in other activities of the institute.

### **Conditions:**

The postdoctoral positions are contract appointments starting with one year, renewable depending on performance. Salary will be in the range 2,500-3,500 USD per month paid without deduction of tax. UNU-IIST will provide medical insurance and a fully-furnished apartment (exclusive of utility expenses).

## Research Group:

The rCOS group has a track record of attracting young international Post Docs to jump start their academic careers. Research will be conducted in close cooperation with the international rCOS team, colleagues at UNU-IIST, and colleagues in Norway, Denmark, Germany and China (including universities in Macau). The group is led by [Dr. Zhiming Liu](#) and part of UNU-IIST's Information Engineering Programme. There are current two projects, Harnessing Theories for Tool Support ([HTTS](#)) and Applied Runtime Verification ([ARV](#)). HTTS is a joint project with the University of Macau, ARV in collaboration with the University of Oslo, Norway, and the Institute of Software at the Chinese Academy of Sciences, Beijing.

UNU-IIST is a Research and Training Centre of the [United Nations University](#). Its mission is to help developing countries strengthen their education and research in computer science and their ability to produce computer software. It thus provides a unique setting with a proven record in the application of mathematical methods to the production of useful theories for practical problems and for training young researchers in Formal Methods and Theoretical Computer Science. Macao is a multi-cultural city blending Asian and Western elements, about one hour from Hong Kong, and offering easy access to China and South-East Asia.

The positions are **open** immediately until filled. Prospective candidates should submit their electronic application giving a potential starting date, including CV and a list of publications. Please list the email addresses of two or three people to whom we can apply for references. Such people should be able to comment authoritatively on your work, education, skills, and abilities. Please indicate if you do not want us to contact them at this stage. You may also attach soft copies of up to three of your papers, e.g. if the publication is not easily/electronically available.

Please direct applications to [Mrs. Wendy Hoi](#) (Administrative & Programme Services Officer). Feel free to contact [Dr. Zhiming Liu](#) or [Dr. Volker Stolz](#) directly for informal enquiries.