

**Position Number: D93593**  
**Job Title: Research Associate (post-doc)**  
**Department: Computer Science**  
**FTE: 1.0 benefits eligible**  
**Job Type: Fixed Term Faculty**  
**Posted Date: 2/14/11**

### **Position Summary**

The High-Assurance Systems Programming (HASP) project at Portland State University has openings for two post-doctoral researchers to help design, develop, and apply a new functional language for systems programming. The Habit language derives from Haskell, with the addition of features for efficient low-level programming. Its compiler and high-assurance runtime system (HARTS) extends the verified CompCert compiler. Possible demonstration projects include an L4-based microkernel, lightweight Xen guest domains, and high-assurance portable devices. It is anticipated that one post-doc will champion the certifying compiler and the other will champion the demonstration project. The HASP team currently consists of three faculty (James Hook, Mark Jones, and Andrew Tolmach) and seven PhD students.

### **Responsibilities**

Fundamental job duties of the position include:

- Performing research
- Creating software artifacts
- Assisting in the development of contract deliverables
- Participate in activities of the research group, including research retreats and project meetings
- Presenting research results at conferences & at meetings with research sponsors
- Writing scholarly articles
- Assisting in the mentoring of students engaged in the research
- Execute minor administrative tasks necessary for project success

### **Minimum Qualifications**

- Candidates must have (or be near to completing) a Ph.D. or equivalent in computer science or other relevant area. Consider using equivalencies for example: Master's Degree or Bachelor's Degree plus 3 years of applicable experience.
- Excellent written and oral communication skills
- Non-U.S. citizens must be approved by our research sponsor one month in advance of employment.

### **Preferred Qualifications**

Candidates are sought with interest and expertise in one or more of the following areas:

- Design, implementation, and application of functional programming languages such as Haskell, ML, or Scheme, and topics such as type systems, monads, compilation techniques, etc.
- Design and implementation of systems-level software, such as hypervisors or microkernel designs (such as L4, Xen, EROS, etc.) device drivers, embedded system software, etc.
- Design, construction, and analysis of high-level language runtime systems, particularly in the areas of memory management, garbage collection, and concurrency.
- Formal methods, such as theorem proving (for example, using Isabelle, Coq, or similar tools) or software model checking. Experience in multiple areas is not required, but a willingness to learn about and to collaborate with experts in other areas is required.

**Compensation**

The starting annual salary rate for this position will be \$60,000 per year with an excellent benefits package including fully paid healthcare; a generous retirement and vacation package; and reduced tuition rates for employee, spouse or dependant at any of the Oregon University System schools.

**To Apply**

To apply, please send CV with a brief description of your research accomplishments and interests, including the names of three references. Submissions should be sent to [progadm@cs.pdx.edu](mailto:progadm@cs.pdx.edu). Please include the phrase "HASP Postdoc" in the subject line. General questions about the positions may be directed to the same address. Further information about the Department of Computer Science and its programs at Portland State is available on the department's home page (<http://www.cs.pdx.edu>).

Review of applications will begin immediately. This position will remain open until finalists are identified.

*Portland State University is an Affirmative Action, Equal Opportunity institution and welcomes applications from diverse candidates and candidates who support diversity.*