Post-doctoral position in Formal Verification
Portland State University

Applications are invited for a post-doctoral research position at Portland State University in the area of formal verification and its applications to network and systems software.

The hosting project, SOUND (Safety on Untrusted Network Devices), is a new joint effort with researchers at the University of Pennsylvania (UPenn) and BAE Systems, funded as part of the DARPA MRC (Mission-Oriented Resilient Clouds) program. The goal of SOUND is to construct distributed systems that are highly resilient against cyber-attack, using new ideas in protocols, authentication, and auditing. SOUND is also closely integrated with the existing SAFE (Semantically Aware Foundation Environment) project, hosted at UPenn, Harvard, Northeastern, and BAE. SAFE is designing a highly secure host architecture, taking a completely clean-slate approach to the processor, programming language, and operating system. SAFE hosts will be used as reliable components within SOUND networks.

At Portland State, we will apply formal verification at multiple levels—specification, algorithms and protocols, and implementation—to increase assurance of both SAFE and SOUND. Our initial efforts will build on our experience producing verified implementations of runtime-system components using the Coq proof assistant in the context of the HASP/HARTS project. This post-doc position offers an opportunity to put formal methods to work to attack critical problems in the security of our cyber-infrastructure, in collaboration with leading researchers in secure systems and languages, and within a highly visible program.

The ideal candidate will have a Ph.D. in Computer Science with expertise in formal verification (for example, using Coq, Isabelle, or similar tools) and in one or more of the following areas: security, networking, and systems software. This position initially runs through September 2012 with the possibility of renewal for up to three years total duration. Review of applications will begin immediately. The position will remain open until finalists are identified. Start date is negotiable, but ideally within a few months. Starting salary is $60,000 per year, plus generous health and vacation benefits.

Background on this research effort can be found at:

- On SOUND: `www.cs.pdx.edu/~apt/MRCprop_technical.pdf`
- On SAFE: `www.crash-safe.org/papers`
- On HASP/HARTS: `www.cs.pdx.edu/~apt/icfp10.pdf`

To apply, please send a CV together with a brief description of your research accomplishments and interests, including the names of three references, to `sound-adm@cs.pdx.edu`. Please include the phrase "SOUND Postdoc" in the subject line. Questions about the position may be sent directly to Andrew Tolmach (`apt@cs.pdx.edu`).

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