

**Collaborative Research:
CT-T:
Explainable Policies for Establishing Trust in Web
Applications**

**Team Proposal to National Science Foundation in response to Cyber Trust (CT)
solicitation NSF-05-518**

NSF Proposal number 0524842 submitted February 7 2005

Florida Institute of Human and Machine Cognition

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PI: Marianne Winslett

National Science Foundation
Cyber Trust Program

February 5, 2005

RE: Letter of support

To whom it may concern:

I am writing to express my support for Dr. Pat Hayes's Cyber Trust proposal.

I have worked with Dr. Pat Hayes for a little over four years in the DARPA DAML program and in the World Wide Web Consortium's RDF Core Working Group. We share an interest in the Semantic Web, which might be summarized as connecting Web Architecture with formal systems.

In order to open up formal systems to web scale, it seems vital that components be able to justify their conclusions with formal explanations or proofs so that peers can check claims and proofs relative to their own policies. The interaction between formal proofs and distributed system policies appears to be extremely important to explore.

The industry is struggling to scale Web Services beyond pairwise private agreements and centrally managed markets. I suspect this area of research could revolutionize the way these systems are put together.

Dan Connolly
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Bio

Dan Connolly serves on the Technical Architecture Group and the Web Ontology Working Group. He manages to find a little time for Semantic Web Development.

He began contributing to the World Wide Web project, and in particular, the HTML specification, while developing hypertext production and delivery software in 1992. He presented a draft of HTML 2.0 at the first Web Conference in 1994 in Geneva, and served as editor until it became a Proposed Standard RFC in November 1995. He was the chair of the W3C Working Group that produced HTML 3.2 and HTML 4.0, and collaborated with Jon Bosak to form the W3C XML Working Group and produce the W3C XML 1.0 Recommendation.

Dan received a B.S. in Computer Science from the University of Texas at Austin in 1990. His research interest is investigating the value of formal descriptions of chaotic systems like the Web, especially in the consensus-building process.



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27th January 2005

To Whom It May Concern

The purpose of this letter is to express my full support for Dr Jeffrey Bradshaw's Cyber Trust proposal.

I have known Dr Bradshaw for three years; we have met regularly at various Agent-based and Grid Computing conferences, and have mutually hosted visits to our respective institutions at the University of Southampton and the University of West Florida. Dr Bradshaw and his team hosted me during a 4-month sabbatical stay in 2004, which gave us the opportunity to work closely together during a substantial period of time. We share a common interest in large-scale distributed systems with autonomous services cooperating to achieve common goals, in a secure and trustable manner.

As part of the UK e-Science projects myGrid (www.mygrid.org.uk), PASOA (Provenance Aware Service Oriented Architecture, www.pasoa.org), and the EU Provenance project (www.gridprovenance.org), my Southampton team have been developing some protocols and services to record and reason over provenance in the context of service-oriented architectures. Provenance, which is data that explains how a computational result was achieved, is a key mechanism that allows users to put their trust in computations involving dynamically discovered components in open environments. With Dr Bradshaw, we have identified several areas of collaborative research: investigating the relationship between provenance and proofs in the context of Semantic Web inferences; reasoning over provenance in order to infer trust; and applying policies to provenance architectures in order to specify their configuration and enforce their safety and liveness.

Should Dr Bradshaw's proposal be funded, we anticipate mutually beneficial research synergies that will greatly accelerate the development of a trustworthy cyber infrastructure. The research areas mentioned previously are broadly unexplored and are attracting a lot of interest from both academia and industry. Furthermore, the research can be driven by a series of real use cases that we are specifying with collaborators across Europe; these include scenarios in the following domains: e-commerce with IBM, aerospace engineering with German Aerospace, particle physics with CERN, computational steering of physical science models with UK RealityGrid project and Medical decision support with University Polytechnica de Catalunya in Barcelona.

In conclusion, the proposed research is not only timely but also relevant to multiple disciplines. I therefore wholeheartedly support the proposal.

Yours sincerely

Professor Luc Moreau



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February 7, 2005

Professor Marianne Winslett
Department of Computer Science
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Dear Professor Winslett,

The City of Champaign reviewed the basic components and scenarios for the proposed grant application for methods to improve real-time response capabilities of virtual organizations as it relates to disaster management.

The City is interested in identifying how existing technologies can be integrated with new ones to advance the initial and ongoing processes inherent to disaster management. In addition, the City is interested in how these elements can be combined to improve data collection and mobilization, decision-making, and effectiveness of the solutions. The proposed work addresses these issues, and the City looks forward to working and cooperating with you and your colleagues in the future.

If you have any questions regarding this communication, please feel free to contact me.

Sincerely,

Frederick J. Halenar
Information Technology Director
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