Thomas S. Stepleton

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Education

Carnegie Mellon University, *Pittsburgh, PA*. Ph.D student, Robotics Institute and Center for the Neural Basis of Cognition, since August 2002.

Swarthmore College, *Swarthmore, PA*. Bachelor of Arts, June 2002. Computer Science major, Philosophy minor, Cognitive Science concentrator.

Thomas Jefferson School, *St. Louis, MO*. Graduated with honors, June 1998.

Honors and Awards

2002	**Best paper**, 2002 Usenix LISA system administration conference
	Graduate Research Fellowship, National Science Foundation
	Graduation with high honors, Swarthmore College
	Membership, Phi Beta Kappa
2001	**Membership**, Sigma Xi
1998	**Valedictorian**, Thomas Jefferson School

Experience

Research assistant, **Robotics Institute, Carnegie Mellon University**. Current research with Dr. Tai Sing Lee on unsupervised learning of object models and the cortical basis of visual object representation. (*Fall 2002 to present*)

Intern, **Sony Corporation**. Extensible C++ implementation of FastSLAM simultaneous localization and mapping algorithm at corporate headquarters in Tokyo. System was developed to be platform agnostic; was applied in practice to the Sony AIBO entertainment robot. (*Summer 2003*)

Intern, **Jet Propulsion Laboratory**. Development and integration of simulator software for the 2003 Mars Exploration Rover software development team. The components of my distributed simulation software system communicated with each other over TCP/IP sockets, at times interfacing with actual spacecraft software running on flight computer prototypes. Skills learned include OpenGL programming and socket programming on the VxWorks real-time operating system. (*Summer 2002*)

Volunteer System Administrator, **Swarthmore College Computer Society**. Administration of 800-user shell account system, web and streaming media server, and PC lab client systems, all running Debian Linux. Setup and upkeep of X terminals, Macintosh video and graphics workstations, multimedia hardware, and printers in new computer laboratory. Early author and advocate of SCCS's current mission of becoming a learning and creativity resource. (*Fall 1998 - Spring 2002*)

Researcher, **Swarthmore College Computer Science Department**. Faculty-supervised undergraduate thesis research investigating word representation and instance-learning based real-time robot control. Additional work on nametag-reading component for Swarthmore real-time robot vision system included in paper published in *Machine Vision and Applications* [Springer-Verlag Press]. (*Summer 2000, 2001*)

System Administrator, **The Math Forum**. Administration of high-volume website servers, including installation and configuration of Red Hat Linux and Digital UNIX on Intel and Alpha architectures. Other tasks included installation and integration of NIS, DNS, and NNTP services, as well as the creation of a centralized configuration file repository system. (*Summer 1999*)

Skills

- Proficiency in C/C++, Java, Perl, PHP, Scheme, and other languages, as well as UNIX shell programming. Extensive experience with UNIX sockets and POSIX programming. Familiarity with VHDL and Objective C, along with OpenGL programming and XML technology.

- General UNIX proficiency. Extensive Linux administration experience (since 1995), including Debian, Red Hat, and Slackware distributions. Vast specific working knowledge of many other UNIX variants.

- Considerable robotics programming experience, featuring Sony AIBO, iRobot Magellan Pro, ActivMedia Pioneer, ActivMedia AmigoBot, Nomadic Scout, and K-Team Khepera mobile robots. Additional experience with proprietary NASA robotic systems.

- Proficiency in XHTML, CSS, and other web design technologies, with experience in designing PHP and PostgreSQL-backed web applications.

- Experience with LaTeX, Adobe Photoshop, and various other commercial and open source graphics and office software systems.

- Licensed private pilot (airplane, single-engine land).

- Basic conversational command of Italian.

Publications

T. Stepleton, "Work Augmented Laziness with the Los Task Request System". *Proceedings of the 16th Usenix Systems Administration Conference*, 1-12, November 2002.

B. Maxwell, N. Fairfield, N. Johnson, P. Malla, P. Dickson, S. Kim, S. Wojtkowski, T. Stepleton, "A Real-Time Vision Module for Interactive Perceptual Agents". *Machine Vision and Applications*, 14:72-82. 2003.

T. Stepleton, T. S. Lee, "Using Co-occurrence and Segmentation to Learn Feature-based Object Models from Video". *WACV 2005*, January 2005.

T. Stepleton, "Predicting and Evaluating the Power of Shared Features". To appear in *Workshop on Empirical Evaluation Methods in Computer Vision*, June 2005.

Projects/Open Source Software

The Los Task Request System, a software suite that securely automates data collection and execution of common user-requested system administration tasks. Employs Perl, XML, and public key encryption technology. Presented as a refereed paper at the 2002 Usenix LISA system administration conference and awarded one of two Best Paper awards. (*Spring 2002*)

The LYKEION Transient Confabulation Engine, a PHP/PostgreSQL-backed web messageboard suite designed to integrate tightly with users and groups on a UNIX shell account system. (*Fall 2000*)

WebFTP, a web file transfer suite using local network FTP as a backend, allowing for robust filesystem management without the security risk of a world-accessible FTP server. Created mostly as a proof of concept, it is now administered by Anthony Ball. (*Summer 1999*)
   Web page: `http://www.web-ftp.org/`