

## FRANK R STOLLE

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**Objective** A challenging full-time position where I can apply and further my knowledge and expertise.

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**Interests**

- Computer Vision
- Photogrammetry
- 3D Reconstruction
- Surface Models
- Resource-Bounded Computation
- Aerial and Satellite Remote Sensing

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**Education**

**UNIVERSITY OF MASSACHUSETTS**, Amherst, MA

- Ph.D. in Computer Science, Sep 2006
- Dissertation: “Multi-image surface reconstruction from aerial images and sequences”

**UNIVERSITY OF MASSACHUSETTS**, Amherst, MA

- Master of Science in Computer Science, September 1996
- GPA 3.9 / 4.0

**DRESDEN TECHNICAL UNIVERSITY**, Dresden, Germany

- Diploma (equivalent to M.S.) in Computer Science
- Specialization in Computer Architecture, May 1993
- Grade: “ausgezeichnet” (with distinction, highest grade)

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**Projects**

*Sponsored Research*

- “Interactive Software Systems for Expert-Assisted Image Analysis and Classification of Aquatic Particles”, National Science Foundation.
- “Geometric Reconstruction from High Resolution Aerial and Satellite Data,” Agency for Defense Development, South Korea.
- “Challenges in CISE: Automatic Interpretation of High Altitude Image Data for Eco-System Modeling,” National Science Foundation.
- “Automatic Population of Geospatial Databases,” DARPA.
- “Research and Development of Image Understanding Systems,” DARPA.

*Major Projects*

- Tools to efficiently assist experts in addressing problems associated with classifying suspended marine particles generated by marine optical instruments, JAVA.
- Components for aerial image understanding and GIS systems, C, C++ and LISP.
- Components for digital aerial camera system for light aircraft, 2 cameras, GPS, INS, laser range finder.
- Expansion of Chemistry Resource Center from 8 computers 50 workstations (Mac/PC) and several servers (NT, UNIX). Planning, equipment purchase, system installation.
- VHDL-front-end for hardware simulator, C, (thesis at Dresden Technical University).
- Semantic analysis and synthesis component for production Modula-2 compiler, Modula-2.
- Student and course management system for a regional high school, Dbase IV.
- Software to recover orbital elements of satellites from short periods of observation, C.

## Teaching and Supervisory Experience

### *Teaching*

- Undergraduate Teaching, Mount Holyoke College, Visiting Assistant Professor.
- Computer Networks, graduate level, University of Massachusetts, Teaching Assistant.
- Computer Architecture, graduate level, Dresden Technical University, Teaching Assistant.
- Data structures, undergraduate level, Dresden Technical University, Teaching Assistant.
- Women in Computer Science program, Dresden Technical University, Lecturer.
- Computer literacy program for high-school students, Waggonbau Bautzen, Germany, Instructor.

### *Supervisory*

- Supervised undergraduate research projects in Computer Vision Laboratory, University of Massachusetts, Amherst.
- Supervised staff and student computer support personnel in the Department of Chemistry, University of Massachusetts, Amherst.

## Technical Skills

### *Computer Vision / Photogrammetry / Remote Sensing*

- Computer Vision / Photogrammetry algorithms.
- Map projections.
- GIS software (ERDAS, ARC, ENVI, GIS).
- Sensor hardware (Digital / video cameras, GPS, INS sensors, laser range finders).

### *Programming languages*

- C, C++, JAVA
- LISP, Prolog
- Modula-2, Pascal
- Dbase, SQL
- HTML
- TCL / TK
- Shell scripts
- IDL, MATLAB

### *Networking*

- TCP/IP, NFS, DNS, SMTP, IPX/SPX, SSH/SCP/SSL, LPR/LDP, POP/IMAP, LDAP
- Active Directory
- Sendmail
- Apache
- Installation and maintenance of network hardware, (cabling, switches, bridges, routers).

### *Operating systems*

- UNIX / Linux
- Windows (98/NT/2000/2003) server and workstation
- Mac OS
- Installation and administration, including web hosting, file serving, directory services, e-mail, backup.

### *Databases*

- MS Access
- MS SQL server, Oracle
- MySQL
- Installation / administration / reporting / programming.

*Other Software*

- MS Office
- Desk Top Publishing
- Image Understanding
- Molecular Modeling
- Software licensing (Sassafras, FLEXIm) and printer accounting software.

*Support*

- Personal computer workstation and server hardware (PC, Mac, SUN).
- Remote system administration, system security configuration, administration, and monitoring; intrusion detection and recovery.
- Simplex access control system hardware and software.
- User support in networked heterogeneous environments.

**Work History**

- 12/06 – present      **UNIVERSITY OF MASSACHUSETTS**, Amherst, MA  
*Post Doctoral Research Associate*  
 Research in Computer Vision.
- 09/93 – 11/06      **UNIVERSITY OF MASSACHUSETTS**, Amherst, MA  
*Graduate Research Assistant*  
 · Research in Computer Vision.
- Graduate Teaching Assistant*  
 · Teaching Assistant for computer networks class, 2 semesters.  
 · Interacted with off-campus students.
- Computer Systems Administrator*  
 · Computer Systems Administrator for the Department of Chemistry.  
 · Server management, hardware and software support.
- 07/02 - 06/03      **MOUNT HOLYOKE COLLEGE**, South Hadley, MA  
*Visiting Assistant Professor*  
 · Assembler Programming.  
 · Theory of Algorithms.  
 · Data Structures.
- 11/97 – present      **INTELLIGENT MACHINE CONSULTING**, Amherst, MA  
*Computer Consultant*  
 · Computer network setup and support.  
 · Server and workstation installation and support.  
 · Firewall and security configuration and support.  
 · Data migration.  
 · Data analysis and reporting.
- 08/95 - 08/96      **APPLIED ECONOMETRICS, INC.**, Amherst, MA  
*Computer Consultant*  
 · Novell Network Administration.  
 · Windows NT Server Installation and Maintenance.  
 · Database administration.  
 · PC Hardware Maintenance.  
 · User support.

- 06/93 - 08/93      **FRAUNHOFER INSTITUTE FOR CERAMICS AND SINTER MATERIALS,**  
Dresden, Germany  
*Scientific Programmer*  
· Programming of automatic systems to test ceramic samples using spectroscopy.
- 01/93 - 08/93      **NETWORK AND COMPUTER SERVICE,** Hermsdorf, Germany  
*Computer Consultant*  
· Co-owner of a startup computer network consulting company.
- 09/88 - 05/93      **DRESDEN TECHNICAL UNIVERSITY,** Dresden, Germany  
*Graduate Research Assistant*  
· Research in Computer Systems / Computer Architecture.  
  
*Graduate Teaching Assistant*  
· Teaching assistant for graduate computer architecture class.  
· Teaching assistant for undergraduate data structures class.  
  
*Lecturer*  
· Lecturer for Women in Computer Science program
- 09/91 - 04/92      **MBP SOFTWARE & SYSTEMS,** Dortmund, Germany  
*Internship*  
· Scientific software analysis and design.
- 09/87 - 08/88      **WAGGONBAU BAUTZEN,** Bautzen, Germany  
*Programmer / Software Analyst*  
· Database programming.  
· Hardware / system software support.  
· Instructor for computer literacy program for high-school students.

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- Relevant Courses**
- Theory of Algorithms
  - Artificial Intelligence
  - Software Engineering
  - Cryptography
  - Operating Systems
  - Resource-Bounded Reasoning
  - Computer Architecture
  - Computability
  - Vision, Brain, Robotics
  - Computer Networks
  - Database Design
  - Computer Vision
  - Aerial Image Interpretation
  - Theory of Programming Languages

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- Membership in professional Organizations**
- IEEE
  - ACM
  - ASPRS

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- Languages**
- German - fluent
  - English - fluent
  - Russian – good

**Other Activities**

- Computer committee, Department of Computer Science, University of Massachusetts, Amherst, 2001-2002.
- Search committee for Computer Systems Administrator, Department of Biochemistry, University of Massachusetts, Amherst, 2001.
- Search committee for Assistant Computer Systems Administrator, Department of Chemistry, University of Massachusetts, Amherst, 2001.
- Güntz Student Association, Dresden, 1988-1993.

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**Work Authorization**

- U.S. Citizen

## FRANK R STOLLE

### PUBLICATIONS

- Stolle, F. Schultz, H. Woo, D.-M., "High-Resolution DEM Generation using Self-consistency," in ISPRS Hannover Workshop 2005 - High- Resolution Earth Imaging for Geospatial Information, Hannover, Germany, May 2005.
- Schultz, H., Hanson, A., Riseman, E., Stolle, F., Zhu, Z., Woo, D.-M., "A Self-Consistency Technique for Fusing 3D information," in IEEE Fifth International Conference on Information Fusion, Annapolis, MD, July 2002.
- Schultz, H., Hanson, A., Riseman, E., Stolle, F., "Rapid Updates of GIS Databases from Digital Images," in National Conference for Digital Government Research, Los Angeles, CA, May 2002.
- Hanson, A., Marengoni, M., Schultz, H., F Stolle, Riseman, E., Jaynes, C., "Ascender II: a framework for reconstruction of scenes from aerial images," in Workshop Ascona 2001, Automatic Extraction of Man-Made Objects from Aerial and Space Images (III), Ascona, Switzerland, June 2001.
- Schultz, H., Hanson, A., Riseman, E., Stolle, F., Zhu, Z., "A System for Real-time Generation of Geo-referenced Terrain Models," SPIE Symposium on Enabling Technologies for Law Enforcement, Boston MA, Nov. 5-8, 2000.
- Zhu, Z., Hanson, A., Schultz, H., Stolle, F., Riseman, E., "Stereo Mosaics from a Moving Video Camera for Environmental Monitoring," First International Workshop on Digital and Computational Video, Dec. 10, 1999, Tampa, Florida, USA, pp. 45-54.
- Schultz, H., Riseman, E., Stolle, F., Woo, D.-M., "Error Detection and DEM Fusion Using Self-Consistency," in Seventh IEEE International Conference on Computer Vision, Kerkyra, Greece, Sept. 20-25, 1999, Vo. 2, pp. 1174-1181.
- Schultz, H., Hanson, A., Holmes, C., Riseman, E., Slaymaker, D., Stolle, F., "Integrating Small Format Aerial Photography, Videography, and a Laser Profiler for Environmental Monitoring," ISPRS WG III/I Workshop on Integrated Sensor Calibration and Orientation, Portland, Maine, USA June 16-17, 1999.
- Stolle, F., Whitten, G., Hanson, A., "Strategies for Automatic Tie-Point Detection," ISPRS WG III/I Workshop on Integrated Sensor Calibration and Orientation, Portland, Maine, USA June 16-17, 1999.
- Collins, R., Jaynes, C., Cheng, Y.Q., Wang, X., Stolle, F., Riseman, E., Hanson, A., "The Ascender System Automated Site Modeling from Multiple Aerial Images," Computer Vision and Image Understanding Special Issue on Building Detection and Reconstruction from Aerial images, Vol. 72, No.2, Nov. 1998, pp. 143-162.
- Collins, R., Jaynes, C., Cheng, Y.Q., Wang, X.G., Stolle, F., Schultz, H., Hanson, A., Riseman, E., "The UMass Ascender System for 3D Site Model Construction," RADIUS: Image Understanding for Imagery Intelligence, Oscar Firschein and Thomas Strat (Eds.), Morgan Kaufmann Publishers, San Francisco, CA, 1997, Chapter 3, pp. 209-222.
- Jaynes, C., Collins, R., Cheng, Y.Q., Wang, X.G., Stolle, F., Schultz, H., Hanson, A., Riseman, E., "Automatic Construction of Three-Dimensional Models of Buildings," RADIUS: Image Understanding for Imagery Intelligence, Oscar Firschein and Thomas Strat (Eds.), Morgan Kaufmann Publishers, San Francisco, CA, (Ed.), 1997, Chapter 3, pp. 223-236.

- Schultz, H., Jaynes, C., Marengoni, M., Schwickerath, A., Stolle, F., Wang, X., Hanson, A., Riseman, E., "3D Reconstruction of Topographic Objects at the University of Massachusetts," Joint ISPRS Workshop on 3D Recognition and Modeling of Topographic Objects, Stuttgart, Germany, Sept. 17-19, 1997, Vol. 2, Part 3-4W2, pp. 77-87.
- Schultz, H., Schwickerath, A., Stolle, F., Hanson, A., Riseman, E., "Incremental Digital Elevation Map Generation From Stereo Images," ISPRS Workshop on Theoretical and Practical Aspects of Surface Reconstruction and 3D Object Extraction, Haifa, Israel, September 9-11, 1997, Vol. 32, Part 3-2W3, pp. 134-139.
- Wang, X., Stolle, F., Schultz, H., Riseman, E., Hanson, A., "Using Three-Dimensional Features to Improve Terrain Classification," Computer Vision and Pattern Recognition, San Juan, Puerto Rico, June 1997, pp. 915-920.
- Collins, R., Hanson, A., Riseman, E., Jaynes, C.O., Stolle, F., Wang, X., Cheng, Y., "UMass Progress in 3D Building Model Acquisition," 1996 Image Understanding Workshop, Feb. 1996.
- Jaynes, C.O., Stolle, F., Schultz, H., Collins, R., Hanson, A., Riseman, E., "Three-Dimensional Grouping and Information Fusion for Site Modeling from Aerial Images," 1996 Image Understanding Workshop, Feb. 1996.
- Cheng, Y., Collins, R., Jaynes, C., Hanson, A., Riseman, E., Schultz, H., Stolle, F., Wang, X., "Collected University of Massachusetts RADIUS Papers," COINS Technical Report 95-43, Department of Computer Science, University of Massachusetts, Aug. 1995.
- Collins, R., Cheng, Y., Jaynes, C., Stolle, F., Wang, X., Hanson, A., Riseman, E., "Site Model Acquisition and Extension from Aerial Images," International Conference on Computer Vision, Cambridge, MA, June 1995.
- Jaynes, C.O., Stolle, F., Collins, R., "Task Driven Perceptual Organization for Extraction of Rooftop Polygons," IEEE Workshop on Applications of Computer Vision, Sarasota, FL, Dec. 1994.
- Jaynes, C.O., Stolle, F., Collins, R., "Perceptual Organization for Extraction of Rooftop Polygons," COINS Technical Report 94-86, Department of Computer Science, University of Massachusetts, Nov. 1994.
- Jaynes, C.O., Stolle, F., Collins, R., "Polygon Extraction through Perceptual Organization," 1994 Image Understanding Workshop, Nov. 1994.

**FRANK R STOLLE**

**REFERENCES**

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