Richard S. Weiss

CURRICULUM VITAE

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Education

Ph.D., Mathematics	Harvard University, 1976
M.A., Mathematics	Harvard University, 1972
A.B., Mathematics	Brandeis University, 1969

Professional Employment

The Evergreen State College
Member of the Faculty (July 2015 - present)

The Evergreen State College
Visiting Member of the Faculty (July 2005 - 2015)

ITA Software, Cambridge, MA
Manager of Performance Analysis Group (July 2007 - Oct 2007)

Hampshire College
Visiting Assistant Professor (July 2002 - June 2005)

Smith College
Department of Computer Science
Visiting Professor (July 2001 - June 2002)

Compaq Computer Corporation
VSSAD, Alpha Development Group
Principal Software Engineer (April 1997 - July 2001)

Dartmouth College
Department of Computer Science
Visiting Professor (March 1996 - June 1996)

Digital Equipment Corporation
Cambridge Research Laboratory
Consultant (March 1995 - September 1996)

University of Massachusetts,
Department of Computer Science

Research Associate Professor (May 1994 - April 1997)
Research Assistant Professor (Sept 1992 - May 1994)
Visiting Lecturer (February 1983 - Sept 1992)
Department of Mathematics
Visiting Assistant Professor (September 1977 - September 1978)

Intermetrics Inc., Cambridge, MA
Senior Analyst (September 1979 - February 1983)

Amherst Associates, Amherst, MA
Analyst (September 1978 - September 1979)

University of California at Santa Cruz
Mathematics Board
Assistant Professor (September 1976 - September 1977)

Simmons College, Boston
Department of Mathematics
Instructor (September 1974 - September 1976)

Tufts University, Medford, MA
Department of Mathematics
Instructor (September 1973 - June 1974)

Publications

Articles

- R. Weiss, J. Mache, and E. Nilsen "Top 10 Hands-on Cybersecurity Exercises," *Journal of Computing Sciences in Colleges,*, 29(1), pp 140-147, Oct 2013.
- R. Weiss and J. Mache, "Teaching security labs with web applications, buffer overflows and firewall configurations," *Journal of Computing Sciences in Colleges,* 27(1), pp 163-170, Oct 2011.
- R. Weiss and I. Overcast, "Finding Your Bot-Mate: Criteria for Evaluating Robot kits for Use in Undergraduate Computer Science Education," *Journal of Computing Sciences in Colleges*, 24(2), pp. 43–49, Dec. 2008.
- S.B. Kang and R. Weiss, "Characterization of errors in compositing panoramic images." *Computer Vision and Image Understanding*, Vol 73, No 2, Feb. 1999.
- R. Szeliski and R.S. Weiss, "Robust shape recovery from occluding contours using a linear smoother," *International Journal of Computer Vision*, Vol 28, No 1, June 1998, pp. 27–44.
- Z. Zhang, R. Weiss, and A. Hanson, "Obstacle detection based on qualitative and quantitative 3D reconstruction," *IEEE Trans. Pattern Analysis and Machine Intelligence*, Vol 19, No 1, Jan. 1997, pp. 15–26.
- P.J. Giblin and R.S. Weiss, "Epipolar curves on surfaces," *Image and Vision Computing*, Vol 13, No 1, Feb. 1995, pp. 33–44.
- J.M. Smith, R.S. Weiss, and M. Patel, "An $O(n^2)$ heuristic for Steiner minimal trees in E^3," *Networks,* Vol 25, 1995, pp. 273–289.

- J.B. Burns, R.S. Weiss, and E.M. Riseman. "View variation of point-set and line segment features." *IEEE Trans. Pattern Analysis and Machine Intelligence.* Vol 15, No 1, 1993, pp 51-68.
- J. Hong, X. Tan, B. Pinette, R.S. Weiss, and E.M. Riseman, "Image-based homing." *IEEE Control Systems*, Vol 12, No 1, Feb 1992, pp. 38–45.
- J. Dolan, R.S. Weiss, and J.M. Smith, "Minimum length tree networks on the unit sphere", *Annals of Operations Research*, Vol 33, 1991, pp. 503-535.
- R.S. Weiss, H. Nakatani, and E.M. Riseman, "An error analysis for surface orientation from vanishing points," *IEEE Trans. Pattern Analysis and Machine Intelligence.* Vol 12, No 12, 1990, pp. 1179-1185.
- R.J. Popplestone, Y. Liu, and R.S. Weiss, "A group theoretic approach to assembly planning," *AI Magazine*, spring 1990, pp 82-97.
- M. Boldt, R.S. Weiss, and E.M. Riseman, "Token-based extraction of straight lines," *IEEE Transactions on Systems, Man and Cybernetics*, Vol 19, No 6, 1989, pp. 1581–1594.

Books and book chapters

- E. Damon, J. Mache, R. Weiss, K. Ganz, C. Humbeutel, M. Crabill, "Cyber Security Education: The Merits of Firewall Exercises," in *Emerging Trends in ICT Security.* B. Akhgar and H.R. Arabnia (Eds), pp. 507-515, 2013.
- J.B. Burns, R.S. Weiss, and E.M. Riseman, "The non-existence of general-case view-invariants." in *Geometric Invariance in Computer Vision.* J.L. Mundy and A. Zisserman (Eds.), Cambridge, MA: MIT Press, pp. 120-131, 1992.
- R. Szeliski and R.S. Weiss. "Robust shape recovery from occluding contours using a linear smoother." *Real-Time Computer Vision*, C.M. Brown and D. Terzopoulis (Eds.), Cambridge: Cambridge University Press, 1994.
- William Fulton (in collaboration with Richard Weiss), *Algebraic Curves.* New York: W.A. Benjamin, 1969.

Patents

- S.B. Kang and R.S. Weiss, Camera calibration using off-axis illumination and vignetting effects, U.S. Patent no. 7,023,472, granted Apr. 4, 2006.
- Sing Bing Kang and Richard Weiss, A Method for simultaneous compositing a panoramic image and determining the camera focal length. 2004

Conference proceedings

- Weiss, R., Locasto, M., Mache, J., Taylor, B., Hawthorne, E., Cappos, J., Siraj, A. (2015, February). Teaching Security Using Hands-on Exercises in 2015.
- Weiss, R. S., Boesen, S., Sullivan, J. F., Locasto, M. E., Mache, J., Nilsen, E. (2015, February). Teaching Cybersecurity Analysis Skills in the Cloud. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education* (pp. 332-337). ACM.
- Hooshangi, S., Weiss, R., Cappos, J. (2015, February). Can the Security Mindset Make Students Better Testers?. In *Proceedings of the 46th ACM Technical Symposium on Computer Science Education* (pp. 404-409). ACM.
- J. Cappos and R. Weiss, (2014, March)."Teaching the security mindset with reference monitors," In *Proceedings of the 45th ACM technical symposium on Computer science education* (pp. 523-528). ACM.

- Boesen, S., Weiss, R., Sullivan, J., Locasto, M. E., Mache, J., Nilsen, E. (2014, August). EDURange: meeting the pedagogical challenges of student participation in cybertraining environments. In *Proceedings of the 7th USENIX conference on Cyber Security Experimentation and Test* (pp. 9-9). USENIX Association.
- Weiss, R., Mache, J., Locasto, M. E., Nestler, V. (2014, March). Hands-on cybersecurity exercises in the EDURange framework. In *Proceedings of the 45th ACM technical symposium on Computer science education* (pp. 746-746). ACM.
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- E. Damon, J. Dale, E. Laron, J. Mache, N. Land, R. Weiss. "Hands on denial of service lab exercises using Slowloris and RUDY." *InfosecCD 12,* Oct 2012.
- R. Weiss and J. Mache. "Teaching security with interactive exercises." (Poster) *Annual Computer Security Conference* Dec 2012. (www.acsac.org/2012/)
- J.B. Cushing, R. Weiss, Y. Moritani, "CS0++ Computer Science Entry Level: Interdisciplinary Science and Computer Science," *CCSC Northwest Conference 2007*, October 2007.
- R. Weiss, "Adding Information Assurance to the Curriculum – Tutorial," *Journal of Computing Sciences in Colleges,* Vol 22, No.2,pp. 46-48, Dec 2006.
- V. Stojanivic, J. Dworak, R.I. Bahar, R.Weiss, "A Cost-Effective Implementation of an ECC-Protected Instruction Queue for Out-of-Order Microprocessors," sl 43rd Design Automation Conference, 2006.
- P. Silapachote, R. Weiss, A. Hanson, "A hierarchical approach to sign recognition," *Workshop on Applications of Computer Vision,* 2005.
- N. Mehta, B.Singer, R.I. Bahar, M. Leuchtenberg and R. Weiss. "Fetch Halting on Critical Load Misses," *International Conference on Computer Design,* Anaheim, 2004.
- E. Chi, A.M. Salem, R. Weiss and I.R. Bahar. "Combining Software and Hardware Monitoring for improved Power and Performance Tuning," *7th Annual Workshop on Interaction between Compilers and Computer Architecture (INTERACT-7),* Anaheim, 2003.
- T. Moreshet , M. Herlihy , R.I. Bahar and R. Weiss. "Power Reduction with Transactional Memory," *Boston Area Architecture Conference,* 2004.
- C-K Luk, R. Muth, H. Patil, R. Weiss, P.G. Lowney, R. Cohn. "Profile-Guided Post-Link Stride Prefetching," *16th Annual Conference on Supercomputing,* 2002.
- R.S. Weiss and N. Binkert. "A comparison of AES candidates on the Alpha 21264," *The Third Advanced Encryption Standard Conference,* 2000, pp. 75–81.
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- P.J. Giblin and R.S. Weiss. "Epipolar fields on surfaces." *Proc. European Conf. on Computer Vision.* Vol 1, pp 14-23, 1994.
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- R. Szeliski and R.S. Weiss. "Reconstructing surfaces from profiles: Epipolar curves." *Proc Allerton Conf. on Communication, Control, and Computing.* pp. 1039-1047, 1993.
- J.M. Smith, R.S. Weiss, and M. Patel. "An $O(n^2)$ heuristic for Steiner minimal tress in E^3." *ARO/MSI Stony Brook Workshop on Computational Geometry.*

- Z. Zhang, R.S. Weiss, A. Hanson. "Automatic calibration and visual servoing for a robotic navigation system." *Proc. IEEE Int. Conf. on Robotics and Automation.* Los Alamitos: IEEE Computer Society Press, Vol 1, pp. 14-19, 1993.
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- R.A. Grupen and R.S. Weiss. "Sensor-based incremental planning for multifingered manipulators." *Proc 1993 NSF Design and Man. Systems Conf.*, pp 1765-1770, Jan 6-8, 1993.
- R.S. Weiss and R. Grupen. "Sensor-based control for multifingered manipulators." AAAI Fall Symposium Series, Sensory Aspects of Robotic Intelligence, Nov. 15-17, 1991.
- R.T Collins and R.S. Weiss. "Vanishing point calculation as a statistical inference on the unit sphere." *Third Int. Conf. on Computer Vision.* Los Alamitos: IEEE Computer Society Press, pp. 400-403, 1990.
- R.A. Grupen, R.S. Weiss and D. Oskard. "Grasp-oriented sensing and control." *Proceedings of the SPIE Conference on Advances in Intelligent Robotics Systems*, Boston, MA, November, 1990.
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- R.A. Grupen and R.S. Weiss. "On interpreting and manipulating the environment." In *Proceedings of the International Symposium on Intelligent Control*, IEEE, August, 1991.
- J. Hong, X. Tan, B. Pinette, R.S. Weiss and E.M. Riseman. "Image-based homing." In *Proc. of the 1991 Conference on Robotics and Automation*, IEEE, Sacramento, CA, April 7-12, 1991.
- Z. Zhang, R.S. Weiss, and E.M. Riseman. "Feature matching in 360° waveforms for robot navigation." *IEEE Conf Computer Vision and Pattern Recognition.* pp. 742-743, 1990.
- J.R. Beveridge, R.S. Weiss, and E.M. Riseman, "Combinatorial optimization applied to 2d model matching subject to fixed and variable scale transformations." *IEEE International Conference on Pattern Recognition*, pp 18–23, June, 1990.
- C. Connolly, J.B. Burns, and R.S. Weiss, "Path planning using laplace's equation." *IEEE Robotics and Automation Conference*, pp 89-98, 1990.
- C. Connolly, J.B. Burns, and R.S. Weiss, "Harmonic functions for robot path construction," *SPIE Conference on Advances in Intelligent Robotics Systems and Visual Communications and Image Processing*, pp 2102-2106, Philadelphia, PA, November, 1989.
- R. Collins, and R.S. Weiss, "An efficient and accurate method for computing vanishing points." *Optical Society Topical Meeting on Image Understanding and Machine Vision*, pp. 92-94, North Falmouth, Cape Cod, MA, June 1989.
- J. Dolan, R.S. Weiss, and J.M. Smith, "Minimum Length Tree Networks on the Unit Sphere." *NATO/ARW Conference on Topological Networks*, Copenhagen, DK, June 19-23, 1989.
- G. Dakin, Y. Liu, S. Nair, R.J. Popplestone, and R.S. Weiss, "Symmetry inference in planning assembly," *Proc. of the IEEE International Conference on Robotics and Automation*, Scottsdale, AZ, May 14-19, 1989.
- R.J. Popplestone, R.S. Weiss, and Y. Liu, "Using characteristic invariants to infer new spatial relationships from old." *Proc. of the IEEE International Conference on Robotics and Automation*, pp. 1107-1112, Philadelphia, PA, April 25-29, 1988.

- J. Dolan, R.S. Weiss, and L. Kitchen, "Perceptual grouping of curved lines." *Proc. SPIE Intelligent Robots and Computer Vision*, pp. 356-364, Cambridge, MA, November 1988.
- R.S. Weiss, "On the organization and application of shape in recognition." *Proc. AAAI Spring Symposium Series*, pp. 42-44, Stanford University, March 22-24, 1988.
- R.S. Weiss, H. Nakatani, and E.M. Riseman, "An error analysis for surface orientation from vanishing points." *Proc. SPIE*, San Diego, CA, August 1988.
- P.J. Giblin, and R.S. Weiss, "Reconstruction of surfaces from profiles." *Proc. IEEE First Int. Conf. on Computer Vision*, pp. 136-144, London, June 1987.
- R.S. Weiss, "Can shape description be applied to model matching?", *Proc. SPIE Intelligent Robots and Computer Vision*, pp. 245-247, Cambridge, MA, November 1987.
- R.S. Weiss, and M. Boldt, "Geometric grouping applied to straight lines." *Proc. IEEE Conf. Computer Vision and Pattern Recognition*, pp. 489-495, Miami Beach, June 1986.
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- J. Callahan and R.S Weiss, "A model for describing surface shape", *Proc. IEEE Conf. Computer Vision and Pattern Recognition*, pp. 240-245, San Francisco, June 1985.

Grants

PI NSF SFS: 7/1/2015 - 7/31/2018, $240,600.
security education with hands-on exercises, a student-staffed help-desk, and webin
Collaborative project with Jens Mache, Lewis & Clark College

co-PI. "Integrating Music, Robotics, and Cybernetics"
Evergreen Foundation Grant, 6/15/2013 - 9/15/2013, $2400
joint with Arun Chandra

PI "TUES: Type 1: EDURange: A Cybersecurity Competition Platform to Enhance Undergraduate Security Analysis Skills
NSF, 8/15/2012 - 7/31/2015, $119,981.
Collaborative project with Jens Mache, Lewis & Clark College

co-PI. "Creative and Scientific Visualizations in 3-D Animation Software,"
Ruth Hayes, Judy Cushing, David McAvity and Richard Weiss, Tom Rye Harvill Award. 2006. $5000.

PI. "Collaborative Research: A Five-College Partnership for Information Assurance Education,"
NSF, 9/04 – 8/06, $12,581.
Joint project with Mark Corner and Brian Levine of the University of Massachusetts at Amherst,
Sami Rollins of Mount Holyoke, Scott Kaplan of Amherst College, and Nick Howe of Smith College

Co-PI. "Combining Hardware and Software Monitoring for Improved Power and Performance Tuning,"
R.I. Bahar and R. Weiss, NSF. 8/03 – 8/07. $166,000.

PI. "Profiles and Incremental Corrections of Surface Reconstruction,"
R.S. Weiss and P.J. Giblin. NATO, March 1991 to March 1995, $5K.

Co-PI, "Sensor-Based, Incremental Planning for Multifingered Manipulators,"
R.A. Grupen and R. Weiss. NSF 1/92-12/95, $335,077.

Co-PI, "Visualizing Research Topics in Computer Science,"
E.M. Riseman, B. Woolf, R.A. Grupen, and R. Weiss. NSF 8/11/89 – 12/31/90, $20,000.

Co-PI, "Recognizing 3D objects from 2D images,"
E.M. Riseman, A.R. Hanson, R.S. Weiss, L. Kitchen. AFOSR 10/1/85 – 5/31/88, $437,500.

Masters Thesis Committees

- Patrick Healy

- John Dolan
- Michael Boldt
- David Oskard
- Manfred Huber
- Theodore Schnackertz
- Zhongfei Zhang
- Srinivas Ravela

Ph.D. Dissertation Committees

- Robert Collins (1993)
- Poornima Balasubramanyam (1993)
- Zhongfei Zhang (1995)
- John Dolan (1995)