

Biography: James Z. Wang

- *Office Address:* PNC Tech. Career Dev. Professor, 313C IST Building, The Pennsylvania State University, University Park, PA 16802
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Professional Preparation

- University of Minnesota, Mathematics and Computer Science, B.S. *Summa Cum Laude*, 1994.
- Stanford University, Computer Science, M.S., 1997.
- Stanford University, Mathematics, M.S., 1997.
- Stanford University, Medical Information Sciences, Ph.D., 2000.

Appointments

- *2004 - Present:* The Pennsylvania State University, University Park, Member of Advisory Board, Institute for Computational Science.
- *2000 - Present:* The Pennsylvania State University, University Park, PNC Technologies Career Development Professor, School of Information Sciences and Technology. Founding Vice Director, The Intelligent Information Systems Research Laboratory.
- *2000 - Present:* The Pennsylvania State University, University Park, Assistant Professor, Department of Computer Science and Engineering.
- *1991 - Present:* Minnesota Supercomputer Institute, Investigator, Quantum Chaos and Computational Number Theory Group.
- *1997 - 2000:* SRI International, Research Consultant, Artificial Intelligence Center.
- *1994 - 2000:* Stanford University, Research Assistant, Departments of Computer Science and Biomedical Informatics.
- *1997 - 1998:* NEC Research Lab, Research Consultant, Computer & Communications Research Lab.
- *Summer 1996:* IBM Almaden Research Center, Researcher, Department of Computer Science.
- *1992 - 1994:* US Army High Performance Computing Research Center, Researcher.

Five Publications Related to Proposal

- Chen Y. and J. Z. Wang, "Image categorization by learning and reasoning with regions," *Journal of Machine Learning Research*, vol. 5, 913-939, August 2004
- Li, J. and J. Z. Wang, "Automatic linguistic indexing of pictures by a statistical modeling approach," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 25(9):1075-1088, 2003.
- Chen, Y. and J. Z. Wang, "Support vector learning for fuzzy rule-based classification systems," *IEEE Trans. on Fuzzy Systems*, 11(6):716-728, 2003.
- Wang, J. Z., J. Li and G. Wiederhold, "SIMPLiCity: Semantics-sensitive Integrated Matching for Picture Libraries," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 23(9):947-963, 2001.
- Wang, J. Z., J. Li, R. M. Gray and G. Wiederhold, "Unsupervised multiresolution segmentation for images with low depth of field," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 23(1):85-90, 2001.

Five Other Significant Publications

- Chen, Y., J. Z. Wang and R. Krovetz "CLUE: Cluster-based retrieval of images by unsupervised learning," *IEEE Trans. on Image Processing*, vol. 13, 15 pages, 2004.
- Li, J. and J. Z. Wang, "Studying digital imagery of ancient paintings by mixtures of stochastic models," *IEEE Trans. on Image Processing*, 13(3):340-353, 2004.
- Chen, Y. and J. Z. Wang, "A region-based fuzzy feature matching approach to content-based image retrieval," *IEEE Trans. on Pattern Analysis and Machine Intelligence*, 24(9):1252-1267, 2002.
- Wang J.Z. and G. Wiederhold, "System for Efficient and Secure Distribution of Medical Images on the

Internet,” *Journal of the American Medical Informatics Association*, vol. 1998 symposium suppl., pp. 907-911, November 1998.

- Wang J. Z., G. Wiederhold and O. Firschein, “System for Screening Objectionable Images Using Daubechies’ Wavelets and Color Histograms,” *Lecture Notes in Computer Science*, 1309:20-30, 1997.

Synergistic Activities

- **Publications:** Published more than 50 journal articles, book chapters, and refereed conference papers during the last five years. He has also published two monographs in Springer/Kluwer series. His work on image indexing and annotation using wavelets and machine learning has been widely cited by colleagues all over the world. According to scholar.google.com, his publications have been cited for more than 700 times. Several major international news wires reported his research.
- **Research:** The SIMPLIcity image understanding and retrieval system he has developed is being used by more than 80 universities, research institutions, and government agencies around the world. The WIPE (Wavelet Image Pornography Elimination) system he has developed was provided to a company which later implemented the Parental Control features for major ISPs. He co-founded the Intelligent Information Systems Research Laboratory with C. Lee Giles. The lab hosts the Citeseer project.
- **Education:** Developed a research and education program on multimedia theory and applications. Integrated lead-edge research in undergraduate education with project-based learning. His undergraduate-level course on the organization of data was rated among the best courses at Penn State by students.
- **National committee services:** Member of the DELOS/NSF Working Group on Digital Imagery for Significant Cultural and Historical Materials. Invited to testify at the National Academies Panel on the Tools and Strategies for Protecting Children from Inappropriate Internet. Member of the Harvard/NSF/Mellon Panel on Digital Imagery for Works of Art.
- **Services to the scientific community:** Program Committee Vice Chair for the 12th International World Wide Web Conference. Member of the editorial boards of two journals. Member of program committees for several conferences. Referee for more than 50 scientific journals including *ACM Tran. on Information Systems*, *ACM Tran. on Internet Technology*, *ACM Multimedia Systems*, *J. of the ACM*, *AI in Medicine*, *Bioinformatics*, *Computer Communications*, *Distributed and Parallel Databases*, *IEEE Intelligent Systems*, *IEEE Signal Processing Letters*, *IEEE Trans. on Fuzzy Systems*, *IEEE Trans. on Image Processing*, *IEEE Trans. on Multimedia*, *IEEE Trans. on Neural Networks*, *IEEE Trans. on Knowledge and Data Engineering*, *IEEE Trans. on Pattern Analysis and Machine Intelligence*, *Image and Vision Computing*, *J. of the American Medical Informatics Association*, *J. of the American Statistical Association*, *J. of the American Society for Information Science*, *J. of Computer Vision and Image Understanding*, *J. of Neuroscience Methods*, *Pattern Recognition Letters*, *Proceedings of National Academy of Sciences*, *Signal Processing*, *Very Large Data Bases Journal*.

Collaborators

Ching-chih Chen (Simmons), Yixin Chen (Univ. of New Orleans), C. Lee Giles (Penn State), Dennis A. Hejhal (University of Uppsala), Jia Li (Penn State), Ruqian Lu (Academia Sinica).

Graduated Ph.D. Advisees: Yixin Chen (Univ. of New Orleans), Hui Han (Yahoo!, with L. Giles), Wei Wang (Motorola, with A. Zhang), Long Chen (Caltech, with J. Xu), Anne Zhang (Univ. of Kansas, with C. Chu). Total: 5.

Current Penn State Ph.D. Advisees: X. Lu (CSE), D. Joshi (CSE), R. Datta (CSE), W. Ge (CSE). Total: 4.

Advisor: Gio Wiederhold (Stanford)