Curriculum Vitae
Yuan-Fang Wang, Ph.D.

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Founder, CEO and CTO
Visualsize Inc.
Goleta, CA

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Professional Expertise

Artificial Intelligence, Deep Learning, Financial Data Analysis, Computer vision, Medical image analysis, and Computer graphics,

Academic Appointments

DURATION	EMPLOYER	POSITION
1999-	*Department of Computer Science, University of California, Santa Barbara*	Professor
1998	*LG Research Center of America, Princeton Junction, NJ*	Faculty Consultant (Resident)
1993 - 1999	*Department of Computer Science, University of California, Santa Barbara*	Associate Professor
1987 - 1993	*Department of Computer Science, University of California, Santa Barbara*	Assistant Professor
1985- 1987	*Computer and Vision Research Center, University of Texas at Austin*	Graduate Research Assistant
1982 - 1985	*Laboratory for Image and Signal Analysis, University of Texas at Austin*	Graduate Research Assistant
1981 - 1982	*Department of Electrical and Computer Engineering, University of Texas at Austin*	Graduate Teaching Assistant

Industrial Experience

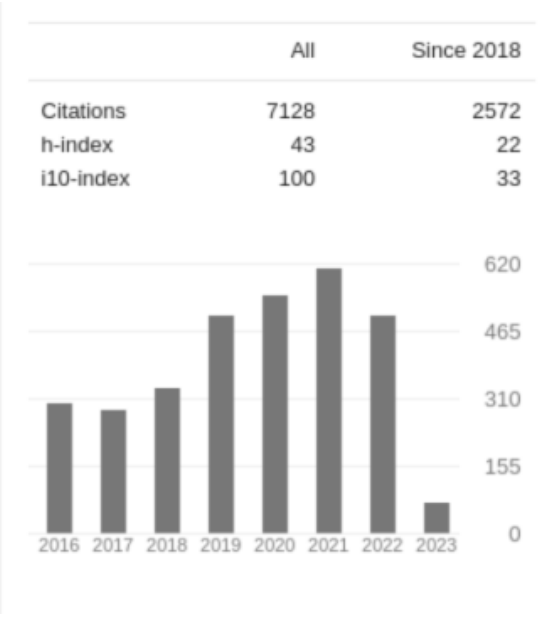
TIME	OORGANIZATION	POSITION
2011-	*Visualsize Inc.*	CEO & CTO
2007	*Visualsize Inc.*	Founder
2004	*Proximex Corp.*	Co-Founder

Education

DATE	UNIVERSITY	SPECIALIZATION	DEGREE
1977-1981	*National Taiwan University*	Electrical Engineering	B.S
1981-1983	*University of Texas at Austin*	Electrical and Computer Engineering	M.S
1983-1987	*University of Texas at Austin*	Electrical and Computer Engineering	Ph.D

Google Scholar Research Impact Statistics (as of Feb 2023)

	All	since 2018
Citations	7,128	2,572
h-index	43	22
i10-index	101	33



Relevance According to Professor Jens Palsberg, Professor of Computer Science at UCLA (http://web.cs.ucla.edu/ palsberg/h-number.html), an h-index at and above 40 is achieved by only the top 5% of CS researchers and is considered excellent both in terms of research quality and quantity of publications.

Professional Membership and Honors

- IEEE, Senior Member
- NSF Faculty Initiation Award, 1988-1990
- CVPR 2019 Best Student Papper Award, 2019 (top one out of over 5,000 publications)

Courses Taught, Directed, and Participated

Lower-division

- Java Programming
- Basic Data Structures

Upper-division

- Advanced Data Structures
- Computer Algorithms
- Introduction to Machine Learning
- Introduction to Computer Vision
- Introduction to Computer Graphics
- Faculty Research Seminar
- Undergraduate Research Projects
- Internship in Industry

Graduate

- Recent Trends in Deep Learning and Neural Nets
- Advanced Machine Learning
- Advanced Computer Vision
- Advanced Computer Graphics
- Advanced Pattern Recognition
- Multi-view Geometry for Computer Vision and Computer Graphics
- Graduate Research Seminar
- Directed MS Thesis Research
- Directed Ph.D. Dissertation Research

Thesis Students Supervised

NAME	DEGREE	THESIS TITTLE	DATE
Pandey, Arvind	M.S.	*A Study on Using Structured Lighting to Analyze Time Varying Image Sequences*	July, 1989
Cheng, David I.	M.S.	*3D Shape Construction and Recognition by Fusing Intensity and Structured Lighting*	June, 1990
Delucia, Dante	M.S.	*The Vision Workbench*	June, 1990
Karandikar, Nitin	M.S.	*Analysis of Video Image Sequences Using Point and Line Correspondences*	July, 1990
Huynh, Duong Le	M.S.	*PIX: A PHIGS Interface to X*	September, 1991
Yang, Simon	M.S.	*Error Analysis of 3D Model Construction and Recognition from Structured Lighting*	September, 1991
Southard, Jonathan	M.S.	*An Object-Oriented Software Architecture for Photorealistic Rendering*	September, 1992
Lee, Jeng-Feng	Ph.D.	*A Physically-Based Scheme for 3D Surface Reconstruction, Representation, and Recognition*	June, 1993
Roy, Indrajit	M.S.	*Near Real-Time Physically-Based Animation of Articulated Rigid Bodies*	July, 1993
Rhodes, Matthew	M.S.	*WEB: A Computer Simulation of the Web-Creation Process of the Garden Cross Spider*	February, 1995
Zhang, Henry	M.S.	*Study of a Novel Adaptive Vision Algorithm*	June, 1995
Lee, CheolWhan	Ph.D.	*Scheduling for Parallel Computer Vision and Image Processing Operation*	March, 1996
Wu, Mark	M.S.	*3D Shape and Motion Analysis from Image Blur and Smear: A Unified Approach*	June, 1997
Xiong, Pan	M.S.	*Study of a Novel Genetic Algorithm with a Perturbation Operator*	June, 1997
DeCastro, Alex	M.S.	*Web-based Collaborative 3D Modeling*	December, 1998
Chade-Meng, Tan	M.S.	*Finding and Using High Quality Word-Pairs for Enhanced Text Categorization*	June, 2000

NAME	DEGREE	THESIS TITTLE	DATE
Krushner, Doug	M.S.	*Bion: An Implantable Neural Stimulation Device*	June, 2002
Alferez, Ronald	Ph.D.	*Object Recognition using Local Invariants and Global Models*	August, 2002
Koppel, Dan	M.S.	*Viewing Enhancement in Video-Endoscopy*	December, 2002
Can, Tolga	M.S.	*Fast Protein Visualization Using Java3D*	December, 2003
Can, Tolga	Ph.D.	*Efficient and Automated Analysis of Protein Structures*	August, 2004
Koppel, Dan	Ph.D.	*The Use of Computer Vision Algorithms and Deformable Modeling to Improve the Endoscopic-Video Interface*	October, 2006
Dusty, Sargent	Ph.D.	*Tracker-Endoscope Calibration for Colonoscopy*	September, 2008
Changmin, Tsai	Ph.D.	*A Framework for Computing Dense Optical Flow Fields with Flexible and Robust Regularization*	September, 2009
Chao-I, Chen	Ph.D.	*Automated Model Building from Video in Computer-Aided Diagnosis in Colonoscopy*	November 2009
Xin Mao	M.S.	*Study on the GPU-boosted Image Feature Detection*	December 2009
Johann Ly	M.S.	*Perceptual Optimizations for Soft-body Physics Simulation*	June 2011
Yi, Gong	Ph.D.	*Modeling and Rendering MVS Point Clouds Reconstructed from Uncalibrated Images*	December, 2011
Zhang, Da	Ph.D.	*Towards Segment-level Video Understanding: Detecting Activities from Untrimmed Videos*	December, 2019
Wang, Xin	Ph.D.	*Language & Vision: Learning to Describe and Interact in the Multimodal World*	June, 2020
Rhys Tracy	M.S.	VREN: Volleyball Rally Dataset with Expression Notation Language	June 2023

Grants and Awards

DATE	PROJECT	SOURCE	AMOUNT	ROLE
1987	*Faculty Initiation Equipment Grant*	College of Engineering, UCSB	$65,000	PI
1988–1989	*Analysis of Time Varying Image Sequences Using Active Sensing*	Faculty Senate, UCSB	$5,500	PI
1989–1990	*A New Paradigm for 3D Scene Analysis Using Active Sensing*	Faculty Senate, UCSB	$2,000	PI
1989–1991	*Integrated Analysis of Intensity and Structured Light Images for Scene Interpretation*	National Science Foundation (Research Initiation Award)	$60,000	PI
1992	*3D Shape Recognition using Intrinsic Surface Properties*	Regents' Junior Faculty Fellowship Award, University of California	$5,000	PI
1993–1998	*An Infrastructure Facility for Parallel Processing Research*	National Science Foundation	$1,050,000	Co-PI
1993–1994	*Image Analysis for Automated Robotic Tracking in Endoscopic Surgery*	California MICRO program and Computer Motion Inc.	$18,000	PI
1993–1994	*Research on Active Object Recognition*	Faculty Senate, UCSB	$6,000	PI
1994–1996	*Implementing and Applying a Modeling and Database System in Support of EOS Scale Earth Science*	NASA	$992,215	Co-PI
1994–1998	*The Alexandria Digital Library Project: Towards a Distributed Digital Library with Comprehensive Services for Images and Spatially-Referenced Information*	NSF/NASA/ARPA	$4,000,000	Co-PI
1995–1996	*LLNL Oil Well Log Imaging Project*	Lawrence Livermore National Labs	$100,000	Co-PI
1996–1997	*A Project on Wafer Inspection, Defect Analysis, and Stereo Metrology,*	Electroglas Inc., San Jose, CA	$43,000	PI
1999–2004	*DLI Phase 2: The Alexandria Digital Earth Prototype*	NSF/NASA/ARPA	$5,000,000	Co-PI
2000-2001	*Image Analysis, Rectification, and Re-rendering in Endoscopy Surgery,*	UC Micro and Karl-Storz Imaging, Inc., Goleta, CA	$54,000	Co-PI

DATE	PROJECT	SOURCE	AMOUNT	ROLE
2000-2001	*Sticky Notes: A Tool for Collaboration,*	Center for Information Technology and Society, UCSB	$9,985	Co-PI
2000–2003	*Invariant, Intra-Class Retrieval in Digital Image Databases*	National Science Foundation	$210,000	PI
2000-2005	*CISE Research Infrastructure: Digital Campus: Scalable Information on a Campus-Wide Wireless Network,*	National Science Foundation	$1,000,000	Co-PI
2001-2002	*Enhancing Image Interpretation and Visual Feedback in Video-Endoscopy,*	UC Micro Program and Karl-Storz Imaging, Inc., Goleta, CA	$54,000	PI
2002-2003	*Viewing Enhancement in Video-Endoscopy,*	UC Micro Program and Karl-Storz Imaging, Inc., Goleta, CA	$54,000	Co-PI
2004	*Multi-Modal, Multi-Dimensional Biometry Systems*	AuguSense Corp., Cupertino, CA	$84,000	Co-PI
2005	*Multi-Modal, Multi-Dimensional Biometry Systems (continuation grant)*	AuguSense Corp., Cupertino, CA	$56,000	Co-PI
2005	*Multi-Modal, Multi-Dimensional Biometry Systems (continuation grant)*	AuguSense Corp., Cupertino, CA	$36,000	Co-PI
2004-2005	*Integration of Advanced Sensor and Sensing Technology*	US Navy	$209,244	Co-PI
2005	*Multi-Modal, Multi-Dimensional Biometry Systems (continuation grant)*	AuguSense Corp., Cupertino, CA	$30,000	PI
2006	*Multi-Modal, Multi-Dimensional Biometry Systems (continuation grant)*	AuguSense Corp., Cupertino, CA	$28,000	PI
2006	*Toward Automated Construction and Animation of 3D Colon Models for Computer-Assisted Diagnosis in Colonoscopy*	US Army Medical Research and Material Command	$69,013	PI
2006	*Toward Automated Construction and Animation of 3D Colon Models for Computer-Assisted Diagnosis in Colonoscopy (continuation grant)*	US Army Medical Research and Material Command	$57,262	PI

DATE	PROJECT	SOURCE	AMOUNT	ROLE
2006-2007	*Toward Automated Construction and Animation of 3D Colon Models for Computer-Assisted Diagnosis in Colonoscopy (continuation grant)*	US Army Medical Research and Material Command	$100,302	PI
2007	*Real-time Stereo Display for Microscopic Image Visualization*	TrueVision Systems, Santa Barbara, CA	$5,250	PI
2007	*Real-time Stereo Display for Microscopic Image Visualization (continuation grant)*	TrueVision Systems, Santa Barbara, CA	$10,948	PI
2007	*Real-time Stereo Display for Microscopic Image Visualization (continuation grant)*	TrueVision Systems, Santa Barbara, CA	$9,868	PI
2007-2008	*Toward Automated Construction and Animation of 3D Colon Models for Computer-Assisted Diagnosis in Colonoscopy (continuation grant)*	US Army Medical Research and Material Command	$149,111	PI
2008	*Real-time Stereo Display for Microscopic Image Visualization (continuation grant)*	TrueVision Systems, Santa Barbara, CA	$9,868	PI
2008	*Toward Automated Construction and Animation of 3D Colon Models for Computer-Assisted Diagnosis in Colonoscopy (continuation grant)*	US Army Medical Research and Material Command	$84,000	PI
2009	*Enhancing Vehicular Safety Using Computer-Vision Shape and Motion Analysis Algorithms*	Industrial Technology Research Institute, Taiwan	$40,000	PI
2010	Un-restricted gift	Electronic Technology Research Institute, Korea	$9,000	PI
2011	*3D Space Reconstruction and Object Recognition with Monocular Camera in the Application of Advanced Safety Vehicle*	Industrial Technology Research Institute, Taiwan	$60,000	PI
2012	*Image Processing Technologies in Severe Weather*	Industrial Technology Research Institute, Taiwan	$60,000	PI

DATE	PROJECT	SOURCE	AMOUNT	ROLE
2013	*Automatic Detection Technology of Image Defect*	Industrial Technology Research Institute, Taiwan	$60,000	PI
2014	*Technology of Multiple Object Classification and Tracking*	Industrial Technology Research Institute, Taiwan	$60,000	PI
2015	*Robust and Efficient Feature Matching with Large Lens Distortion*	Industrial Technology Research Institute, Taiwan	$60,000	PI
2019-2020	*Leverage XSEDE's GPU Clusters for Advanced Machine Learning*	NSF	GPU time and storage	PI
2020-2021	*Leverage XSEDE's GPU Clusters for Undergraduate Machine Learning Courses*	NSF	GPU time and storage	PI
2020-2021	*Leverage XSEDE's GPU Clusters for Advanced Machine Learning*	NSF	GPU time and storage	PI

Recent Consulting Engagement and Research Collaboration

DATE	COMPANY	BUSINESS FOCUS
1993-1995	*Computer Motion Inc., Goleta, CA*	Specialized in advanced robots and control systems for medical applications (Computer Motion has recently merged with Intuitive Surgical)
1997-1998	*Electroglas Inc., San Jose, CA*	Design and manufacture wafer probing equipment to help major semiconductor manufacturers to maximize the overall efficiency of their wafer and device testing processes
1998	*LG Research Center of USA, Princeton Junction, NJ*	Engaged in many aspects of research in video analysis, compression, and delivery, the USA research center of the Korea Electronics giant LG (LG Research Center is now Triveni Digital)
2003-2004	*InTouch Health Inc., Goleta, CA*	Pioneers the use of remote presence in healthcare and develops proprietary communications and mobile robotic platforms for healthcare delivery
2000-2003	*Karl-Storz Imaging Inc., Goleta, CA*	Develops and manufactures endoscopic instrumentation for biomedical research, industrial, and veterinary markets
2004-	*Proximex Corp., Cupertino, CA*	Researches advanced, accurate, and scalable physical security software systems by integrating key technologies from multi-model biometrics, video surveillance, and systems management
2004	*Al Mann Foundation, Valencia, CA*	Conducts medical research to improve the quality of life of people suffering from debilitating medical disabilities by developing innovative bionic solutions
2005	*Toyon Research Corp., Goleta, CA*	Engages in applied research and technical analysis, modeling, and simulation of sensors and weapon systems
2005	*Ask Jeeves Inc., Oakland, CA*	As the 7th largest global web property, Ask Jeeves, Inc., delivers world-class information retrieval products through a diverse portfolio of Web sites, portals, and downloadable applications
2006-2008	*STI Medical Systems, Honolulu, HI*	Is a world leader in developing advanced optical diagnostic imaging technology for cancer detection
2007-2008	*TrueVision Systems, Santa Barbara, CA*	Pioneers real-time 3D high-definition vision system for microsurgery and hospital teaching
2009-2015	*Industrial Technology Research Institute, Hsinchu, Taiwan*	Enhance Vehicular Safety Using Computer-Vision Shape and Motion Analysis Algorithms

Recent Professional Appointments

YEAR	POSITION	ORGANIZATION/MEETING
1998-2001	*Associate Editor*	IEEE Transactions on Pattern Analysis and Machine Intelligence
1998	*Program Co-Chair*	IEEE Computer Society Conference on Computer Vision and Pattern Recognition
2000-2007	*Associate editor*	Pattern Recognition journal
2003	*Panelist*	NSF Review Panel
2003	*Program committee*	SPIE Conference on Electronic Imaging and Multimedia Technology, Photonics Asia
2003	*Co-Chair*	The First ACM International Workshop on Video Surveillance, Berkeley, CA
2004	*Co-Chair*	The Second ACM International Workshop on Video Surveillance and Sensor Networks, New York, NY
2004	*Program committee*	Articulated and Nonrigid Motion, New York, NY
2004	*Program committee*	IEEE International Conference on Multimedia and Expo, Taipei, Taiwan
2004	*Program committee*	SPIE Conference on Electronic Imaging and Multimedia Technology, Photonics Asia
2004	*Session chair*	IEEE International Conference on Multimedia and Expo, Taipei, Taiwan
2004	*Guest editor*	Special Issue on Video Surveillance, ACM Multimedia Systems Journal
2005	*Co-Chair*	The Third ACM International Workshop on Video Surveillance and Sensor Networks, New York, NY
2007	*Program committee*	International Conference on Computer Vision, Rio de Janeiro, Brazil
2007	*Program committee*	IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Minneapolis, MN
2007	*Program committee*	IEEE International Conference on Multimedia and Expo, Beijing, China
2007-2009	*Associate Editor*	Journal of Ambient Intelligence and Smart Environment
2008	*Program committee*	European Conference on Computer Vision, Marseilles, France
2008	*Program committee*	IEEE Computer Society Conference on Computer Vision and Pattern Recognition, Anchorage, AL
2008	*Program committee*	Second ACM/IEEE International Conference on Distributed Smart Cameras, Palo Alto, CA

YEAR	POSITION	ORGANIZATION/MEETING
2009	*Program committee*	Third ACM/IEEE International Conference on Distributed Smart Cameras, Como, Italy
2010	*Keynote speaker*	ITRI Conference on Smart Sensors for Vehicular Safety Applications, Taipei, Taiwan
2014	*Program committee*	International Conference on Pattern Recognition, Stockholm, Sweden

Recent Conference Lectures/Demos/Invited Talks

MONTH/YEAR	TITLE	MEETING/PLACE
February 2002	*A Collaborative Environment for Protein Visualization*	San Diego SuperComputing Center, San Diego, CA
July 2003	*Invariant Feature Extraction and Biased Statistical Inference for Video Surveillance*	IEEE International Conference on Advanced Video and Signal-based Surveillance, Miami, FL
August 2003	*An Overview of Some Current Research at the Computer Vision Laboratory at UCSB*	Academia Sinica, Taipei, Taiwan
August 2003	*Multi-Camera Video Surveillance Systems*	Photon-Electronics Research Center, Industrial Technology Research Institute, Tsinchu, Taiwan
August 2003	*Biolab: A Bioinformatics Workbench*	Biomedical Research Center, Industrial Technology Research Institute, Tsinchu, Taiwan
September 2003	*BioLab: A Bioinformatics Workbench*	San Diego SuperComputing Center, San Diego, CA
September 2003	*Video Surveillance with Distributed Camera Networks*	NSF Information and Data Management Workshop Seattle, WA
November 2003	*Multi-Camera Spatio-Temporal Fusion and Biased Sequence-Data Learning for Security Surveillance*	ACM Multimedia Conference, Berkeley, CA
December 2003	*Toward Robust and Real-Time Event Detection and Recognition for Video Surveillance*	Photon-Electronics Research Center, Industrial Technology Research Institute, Tsinchu, Taiwan
December 2003	*Real-Time Multi-Person Tracking in Video Surveillance*	Pacific Rim Multimedia Conference, Singapore
December 2003	*An Overview of Some Current Research at the Computer Vision Laboratory at UCSB*	National University of Singapore, Singapore

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April 2004	*Distributed Data Fusion and Mining*	SPIE Defense and Security Symposium, Orlando, FL
April 2004	*An Anatomy of a Video Surveillance System*	University of Central Florida, Orlando, FL
April 2004	*An Anatomy of a Video Surveillance System*	University of South Florida, Tampa, FL
April 2004	*Image-Based Rendering and Modeling in Video-Endoscopy*	IEEE International Symposium on Biomedical Imaging, Arlington, VA
April 2004	*Toward Real-Time, Physically-Correct Soft Tissue Behavior Simulation*	IEEE International Symposium on Biomedical Imaging, Arlington, VA
May 2004	*Image Interpretation in Video Surveillance*	Proximex Corp., Cupertino, CA
June 2004	*Human Activity Detection and Recognition for Video Surveillance*	IEEE International Conference on Multimedia and Expo, Taipei, Taiwan
June 2004	*SSD Tracking Using Dynamic Template and Log-Polar Transform*	IEEE International Conference on Multimedia and Expo, Taipei, Taiwan
June 2004	*Distributed Data Fusion and Mining*	National Taiwan University, Taipei, Taiwan
July 2004	*Biolab: A Bioinformatics Workbench (and More)*	Academia Sinica, Taipei, Taiwan
July 2004	*Visual Feedback Enhancement in Video Endoscopy*	National Taiwan University, Taipei, Taiwan
July 2004	*Selective Focus-of-Attention using Master-Slave Cameras for Video Surveillance*	Proximex Corp., Cupertino, CA
September 2004	*Selective Video Zooming and Analysis Using Master-Slave Cameras for Face Detection, Tracking, Modeling and Recognition*	Proximex Corp., Cupertino, CA
January 2005	*Robust and Real-Time Image Stabilization and Rectification*	Workshop on Applications of Computer Vision, Breckenridge, CO
March 2005	*An Overview of Some Current Research at the Computer Vision Laboratory at UCSB*	NEC Research Meeting, Santa Barbara, CA
October 2005	*VSSN Workshop Planning and Future*	ACM Multimedia Conference, New York NY

MONTH/YEAR	TITLE	MEETING/PLACE
June 2005	*Multi-Camera Tracking Frameworks*	Proximex Corp., Cupertino, CA
August 2005	*Web Image Quality Assurance and Duplicate Detection*	Ask Jeeves, Pistataway, New Jersey
September 2005	*Robust and Real-Time Computer Assisted Image Interpretation, Distributed Video Data Fusion and Mining*	NPS-LLNL-UCSB Workshop, Monterey, CA
November 2005	*Toward Robust and Real-time Multi-camera Video Surveillance in the Real World*	Academia Sinica, Taipei, Taiwan
November 2005	*A Video Analysis Framework for Soft Biometry Security Surveillance*	ACM Workshop on Visual Surveillance and Sensor Networks, Singapore
November 2005	*Toward Robust and Real-time Multi-camera Video Surveillance in the Real World*	Photon-Electronics Research Center, Industrial Technology Research Institute, Tsinchu, Taiwan
November 2005	*Toward Robust and Real-time Multi-camera Video Surveillance in the Real World*	National Taiwan University, Taipei, Taiwan
February 2006	*Modeling the Structure and Appearance of Objects from Video*	STI Medical Systems, Honolulu, HI
February 2007	*Structure and Motion Analysis from Video*	Naval Postgraduate School, Monterey, CA
June 2008	*Regularizing Optical-Flow Computation using Tensor Theory and Complex Analysis*	CVPR Workshop on Tensors in Image Processing and Computer Vision, Anchorage, AL
June 2008	*A New Framework for Behavior Modeling of Organs and Soft Tissue using the Boundary-Element Methods*	CVPR Workshop on Tensors in Image Processing and Computer Vision, Anchorage, AL
February 2009	*Uniscale Multi-view Registration Using Double Dog-Leg Method*	SPIE Medical Imaging Conference, San Diego, CA
February 2009	*Feature Detector and Descriptor for Medical Images*	SPIE Medical Imaging Conference, San Diego, CA
December 2009	*Enhancing Vehicular Safety Using Computer-Vision Shape and Motion Analysis Algorithms*	ITRI Conference on Smart Sensors for Vehicular Safety Application (Keynote speaker), Taipei, Taiwan

MONTH/YEAR	TITLE	MEETING/PLACE
December 2009	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Industrial Technology Research Institute (invited talk), Hsingchu, Taiwan
December 2009	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Academia Sinica (invited talk), Hsingchu, Taiwan
December 2009	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	National Taiwan University (invited talk), Hsingchu, Taiwan
January 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Intel Corp. (invited talk), Santa Clara, CA
February 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	MediaTek Regional Office (invited talk), Boston, MA
June 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Sony Playstation Group (invited talk), Los Angeles, CA
June 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Nokia Research Lab (invited talk), Santa Monica, CA
July 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Sony Electronics (invited talk), San Diego, CA
September 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Google (invited talk), Mountain View, CA
September 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Multi-Viewpoint Image Acquisition and Utilization Workshop, Santa Barbara, CA
October 2010	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Myrachitra Inc. (invited talk), Santa Barbara, CA
December 2012	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Conference on Motion and Computer Vision (invited talk), Austin, TX

MONTH/YEAR	TITLE	MEETING/PLACE
May 2013	*Building the Third Dimension Using Consumer-Market Digital Cameras, Camcorders, and Phones*	Qualcomm (invited talk), San Diego, CA
September 2014	*Enhancing Vehicular Safety in Adverse Weather using Computer Vision Analysis*	IEEE Vehicular Technology Conference, Vancouver, Canada
October 2014	*Photo- and Video-based Ranging and Modeling*	International Telemetering Conference, San Diego, CA
October 2014	*High-Performance Tomogrpahic Imaging and Applications*	International Telemetering Conference, San Diego, CA
September 2015	*Evalution, Design and Application of Object Tracking Technologies for Vehicular Technology Applications*	IEEE Vehicular Technology Conference, Boston, MA
October 2015	*Computer Vision Analysis for Vehicular Safety Applications*	International Telemetering Conference, Las Vegas, CA
September 2016	*Robust and Efficient Tracking with Large Lens Distortion for Vehicular Technology Applications*	IEEE Vehicular Technology Conference, Montreal, Quebec, Canada
June 2017	*Multimodel Transfer: A hierarchical Deep Convolutional Network for Fast Artistic Sytle Transfer*	IEEE CVPR Conference, Hawaii (presented by Xin Wang)
June 2018	*Video Captioning via Hierarchical Reinforcement Learning*	IEEE CVPR Conference, Salt Lake City (presented by Xin Wang)
June 2018	*Watch, Listen, and Describe: Globally and Locally Aligned Cross-Modal Attentions for Video Captioning*	North American Chapter of the Association for Computational Linguistics: Human Language Technologies, New Orleans, LA (presented by Xin Wang)

MONTH/YEAR	TITLE	MEETING/PLACE
June 2018	*No Metrics Are Perfect: Adversarial Reward Learning for Visual StoryTelling*	the Association for Computational Linguistics Annual Conference, Melbourne, Australia (presented by Xin Wang)
September 2018	*3D: Single Shot multi-Span Detector via Fully 3D Convolutional Network*	British Machine Vision Conference, England (presented by Da Zhang)
December 2018	*Dynamic Temporal Pyramid Network: A Closer Look at Multi-Scale Modeling for Activity Detection*	ACCV, Perth, Australia
June 2019	*MAN: Moment Alignment Network for Natural Language Moment Retrieval via Iterative Graph Adjustment*	IEEE CVPR Conference, Long Beach, CA (presented by Da Zhang)
June 2019	*Reinforced Cross-Modal Matching and SElf-Supervised Imitation Learning by Vision-Language Navigation*	IEEE CVPR Conference, Long Beach, CA (presented by Xin Wang)
November 2019	*VATEX: A Large-Scale, High-Quality Multilingual Datasetfor Video-and-Language Research*	ICCV Conference, Seoul, Korea (presented by Xin Wang)
June 2020	*Metal: Minimum Effort Temporal Activity Localization in Untrimmed Videos*	IEEE CVPR Conference, (remote, presented by Da Zhang)
Oct 2022	*VERN: VolleyBall Rally Dataset with Expression Notation Language*	IEEE International Conference on Knowledge Graphs, (remote, presented by Haotain Xia and Rhys Tracy)

Major Professional Development and Software Engineering Activities

In addition to numerous consulting and collaboration activities with industry, Professor Wang was involved in two significant start-up activities.

Proximex: Professor Wang was one of the original co-founders of a security surveillance and video analytics company, Proximex, headquartered in Cupertino, CA, back in 2004.

Proximex developed a physical security information management (PSIM) solution providing integration to video; access control; and intrusion, fire and other event alert systems into one common interface. The system can accommodate a wide range of integration needs for small-to-medium and medium-to-large scale environments. The solutions provide greater situational awareness, decreased incident response time, and simplified event reconstruction and reporting.

Professor Wang lead the engineering team and guide the R&D activities for the first years of the company's existence. The company was sold to ADT Security for over $30 million US dollars in 2009.

VisualSize: In 2007, Professor Wang founded a company Visualsize Inc. to commercialize his 3D computer vision research. Visualsize Inc. offers a number of 3D products, and Professor Wang has made all products available for free, non-commercial use on the Internet. Of these, the photo- and video-based 3D modeling and reconstruction pipeline is of particular relevance that has already made a significant societal impact.

3D reconstruction is widely considered an ill-posed, inverse problem in computer vision that is difficult to solve efficiently, robustly and accurately. Furthermore, photo- and video-based 3D modeling is complicated, as it comprises a pipeline of intertwined components, touching upon many facets of computer vision, e.g., 2D feature analysis and tracking, localized 2D to 3D structure and motion inference, global numerical optimization, 3D surface generation, and multi-view texture mapping. A complete 3D pipeline must successfully address all these problems and more.

Professor Wang has made a *single-handed* endeavor to design, code, deploy, and constantly upgrade a complete 3D modeling pipeline from scratch. The pipeline, PhotoModel3D, has the following salient features: It

1. was developed entirely in house with all IP rights held in our lab,
2. works with both discrete images and continuous videos taken by a consumer-market digital camera, camcorder, or camera phone of any make and model,
3. uses no special equipment (e.g., lens and tripod), active projection, artificial lighting, prior camera calibration, man-made markers, or contrived registration patterns,
4. requires no user training (just point and shoot),
5. is fully automated and end-to-end (from photographs to fully colored and textured 3D models) without manual intervention or data-specific parameter tuning,
6. is a software-based solution that runs on commodity Linux and Windows servers without the need of special hardware (GPU, DSP, etc.) acceleration,
7. has an ARM (RISC) version that is deployable on mobile devices for on-the-spot 3D analysis and model construction without invoking any external communication,
8. possesses excellent inter-operability with multiple devices, software and platforms in that it records 3D models in two different resolutions (high and low) and many different formats such as PLY and COLLADA (for CAD software), WRL and WebGL (for Web browser display), and STL (for use with most single-color 3D printers),
9. has been shown to infer 3D models of high fidelity, with an average 3D structure error less than 0.2% measured against ground-truthed 3D LIDAR models,
10. has been deployed on the web allowing free, non-commercial use since 2010; receiving over 100 thousands web visits and thousands of use, and
11. has successfully constructed thousands of 3D models of a large variety of 3D scenes using images and videos contributed from anonymous users all over the world. Currently, over 1,000 such 3D models are on exhibit at our website.

The impact of PhoroModel3D on the society is that the system enables anyone and everyone with a digital camera, camcorder, and phone (over three billions such devices are in circulation worldwide today) to become a 3D content producer without any training in science and engineering.

Cumulative List of Publications

#	YEAR	TITLE and AUTHORS	PUBLISHER	CATEGORY[a]
1	1984	Matching Three-Dimensional Objects Using Silhouettes (with M. J. Magee, and J. K. Aggarwal)	*IEEE Transactions on PAMI,* Vol. PAMI-6, No. 4, pp. 513-518	Article
2	1984	Three-Dimensional Volumetric Matching Using Silhouettes (with M. J. Magee and J. K. Aggarwal)	*Proceedings of the International Conference on Computer, Systems, and Signal Processing,* Bangalore, India	Refereed Conference Proceedings
3	1985	Construction of Surface Representation from 3-D Volumetric Scene Description (with J. K. Aggarwal)	*Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition,* San Francisco, CA, pp. 130-135	Refereed Conference Proceedings (20%)
4	1985	Inferring Local Surface Orientation with the Aid of Grid Coding (with A. Mitiche and J. K. Aggarwal)	*Proceedings of the IEEE Computer Society Third Workshop on Computer Vision: Representation and Control,* Bellaire, MI, pp. 96-104	Refereed Workshop Proceedings
5	1986	Surface Reconstruction and Representation of 3-D Scenes (with J. K. Aggarwal)	*Pattern Recognition,* Vol. 19, No. 3, pp. 197-207	Article
6	1986	Structure and Motion Computation from Point and Line Correspondences in Images (with J. K. Aggarwal)	*Advances in Image Processing and Pattern Recognition,* edited by V. Cappellini and R. Marconi., Elsevier Science Publishers B. V., North-Holland, pp. 171-178	Book Chapter
7	1987	Computation of Surface Orientation and Structure of Objects Using Grid Coding (with A. Mitiche and J. K. Aggarwal)	*IEEE Transactions on PAMI,* Vol. PAMI-9, No. 1, pp. 129-137	Article
8	1987	Experiments in Computing Optical Flow with the Gradient-Based, Multi-constraint Method (with A. Mitiche, and J. K. Aggarwal)	*Pattern Recognition,* Vol. 20, No. 2, pp. 173-179	Article
9	1987	On Modeling 3-D Objects Using Multiple Sensory Data (with J. K. Aggarwal)	*Proceedings of the IEEE International Conference on Robotics and Automation,* Raleigh, NC, pp. 1098-1103	Refereed Conference Proceedings (oral: 25%)
10	1987	Analysis of a Sequence of Images Using Point and Line Correspondences (with J. K. Aggarwal)	*Proceedings of the IEEE International Conference on Robotics and Automation,* Raleigh, NC, pp. 1275-1280	Refereed Conference Proceedings (oral: 25%)

[a] highly competitive conference acceptance rates, if known, are included

#	YEAR	TITLE and AUTHORS	PUBLISHER	CATEGORY
11	1987	3-D Object Description from Stripe-Coding and Multiple Views (with J. K. Aggarwal)	*Proceedings of the 5th Scandinavian Conference on Image Analysis,* Stockholm, Sweden, pp. 669-682	Refereed Conference Proceedings
12	1987	Integration of Active and Passive Sensing Techniques for Representing Three-Dimensional Objects	*Technical report TR 87-1-33,* Computer and Vision Research Center, The University of Texas at Austin	Technical Report
13	1988	Geometric Modeling Using Active Sensing—an Overview (with J. K. Aggarwal)	*IEEE Control Systems Magazine,* Vol. 3, No. 2, pp. 7-13	Article
14	1988	Inference of Object Surface Structure from Structured Lighting—an Overview (with J. K. Aggarwal)	*Machine Vision Algorithms, Architectures, and Systems,* edited by Herbert Freeman, Academic Press, San Diego, CA, pp. 193-220	Book Chapter
15	1988	Geometric Modeling Using Both Active and Passive Sensing (with J. K. Aggarwal)	*Proceedings of the SPIE Sensor Fusion Workshop: Spatial Reasoning and Scene Interpretation,* Cambridge, MA, pp. 12-19	Refereed Conference Proceedings
16	1989	Design and Implementation of Large Spatial Databases (with A. Buckmann, O. Gunther, and T. R. Smith (eds))	*Lecture Notes in Computer Science 409*, Proceedings of the First Symposium SSD, Springer-Verlag, Berlin	Book
17	1989	Integration of Active and Passive Sensing Techniques for Representing 3-D Objects (with J. K. Aggarwal)	*IEEE Transactions on Robotics and Automation,* Vol. 5, No. 4, pp. 460-471	Article
18	1989	On the Computation of Intrinsic Surface Properties with Structured Lighting	*Proceedings of the SPIE Conference on Applications of Artificial Intelligence VII,* Orlando, Florida, pp. 321-332	Refereed Conference Proceedings
19	1989	A New Method for Computing Intrinsic Surface Properties (with P. Liang)	*Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition,* San Diego, CA, pp. 235-240	Refereed Conference Proceedings (20%)
20	1989	Interpretation of 3-D Structure and Motion Using Structured Lighting (with Arvind Pandey)	*Proceedings of the IEEE Workshop on Interpretation of 3-D Scenes,* Austin, TX, pp. 84-90	Refereed Workshop Proceedings

#	YEAR	TITLE and AUTHORS	PUBLISHER	CATEGORY
21	1990	A New Method for Edge Detection and Localization (with Jeng-Feng Lee and P. Liang)	*Proceedings of the SPIE Conference on Applications of Artificial Intelligence VIII,* Orlando, Florida, pp. 524-535	Refereed Conference Proceedings
22	1990	A Surface Reconstruction Model Using Deformable Templates (with Jih-Fang Wang)	*Proceedings of the SPIE Sensor Fusion Conference III,* Boston, MA	Refereed Conference Proceedings
23	1990	Surface Reconstruction Using Deformable Models With Interior and Boundary Constraints (with Jih-Fang Wang)	*Proceedings of the third International Conference on Computer Vision,* Osaka, Japan, pp. 300-303	Refereed Conference Proceedings (20%)
24	1991	Characterizing 3-D Surface Structures from Visual Images	*IEEE Transactions on PAMI*, Vol. 13, pp. 52-60	Article
25	1991	Sensor Data Fusion in Robotics Systems (with J. K. Aggarwal)	*Advances in Control and Dynamic Systems,* edited by C. T. Leondes, Academic Press, pp. 435-462	Book Chapter
26	1991	A Study on Using Structured Lighting to Analyze Time Varying Image Sequences (with Arvind Pandey)	*Pattern Recognition,* Vol. 24, No. 8, pp. 723-738	Article
27	1991	Analysis of Video Image Sequences Using Point and Line Correspondences (with Nitin Karandikar and J. K. Aggarwal)	*Pattern Recognition*, Vol. 24, No. 11, pp. 1065-1084	Article
28	1991	A Unification Scheme for 3-D Surface Reconstruction Using Physically-Based Models (with Jeng-Feng Lee and Jih-Fang Wang)	*International Journal of Imaging Systems and Technology,* Vol. 3, pp. 279-299	Article
29	1991	Surface Modeling Using Deformable Templates (with Jih-Fang Wang)	*International Journal of Imaging Systems and Technology,* Vol. 3, pp. 300-310	Article
30	1991	Physically-Based Surface Modeling Using Flexible Wire Frames (with Jih-Fang Wang)	*Proceedings of the Hawaii International Conference on System Science-24,* Kailua-Kona, Hawaii, pp. 661-670	Refereed Conference Proceedings

#	YEAR	TITLE and AUTHORS	PUBLISHER	CATEGORY
31	1991	A New Method for Sensor Data Fusion in Machine Vision	*Proceedings of the SPIE Conference on Geometric Methods in Computer Vision*, San Diego, CA, pp. 31-42	Refereed Conference Proceedings
32	1991	Fusing Intensity and Structured Lighting for Modeling Cluttered 3-D Scenes (with David I. Cheng)	*Proceedings of the IEEE International Conference on Systems, Man & Cybernetics,* Charlottesville, Virginia, pp. 825-830	Refereed Conference Proceedings
33	1991	An Integrated Approach for 3-D Surface Reconstruction Using Deformable Models (with Jeng-Feng Lee and Jih-Fang Wang)	*Proceedings of the IEEE International Conference on Systems, Man & Cybernetics,* Charlottesville, Virginia, pp. 841-846	Refereed Conference Proceedings
34	1991	PIX: A PHIGS Integration into X (with D. L. Huynh, M. Jensen, R. Larsen, J. Southard, Y. Wang, and A. Mangaser)	*Technical report TR 91-17,* Department of Computer Science, University of California, Santa Barbara	Technical Report
35	1992	Orientation-Based Unique Representation for Planar Curves and Shapes (with P. Liang and J. F. Lee)	*Visual Computer*, Vol. 8, pp. 191-199	Article
36	1992	Sensors and Sensor Fusion (with J. K. Aggarwal)	*Encyclopedia of Artificial Intelligence, 2nd edition*, edited by Stuart C. Shapiro, John Wiley & Sons, Inc., New York, Vol. 2, pp. 1511-1526	Book Chapter
37	1992	Surface Reconstruction Using Deformable Models With Interior and Boundary Constraints (with Jih-Fang Wang)	*IEEE Transactions on PAMI.* Vol. 14, No. 5, pp. 572-578	Article
38	1992	3-D Shape Construction and Recognition by Fusing Intensity and Structured Lighting (with David I. Cheng)	*Pattern Recognition.* Vol. 25, No. 12, pp. 1411-1425	Article
39	1992	PIX: An Object-Oriented Network Graphics Environment (with D. L. Huynh, M. Jensen, R. Larsen, J. Southard, Y. Wang, and A. Mangaser)	*Proceedings of the CG International 92: Visual Computing — Integrating Computer Graphics with Computer Vision*, Tokyo, Japan, pp. 917-936	Refereed Conference Proceedings
40	1992	On 3D Model Construction by Fusing Heterogeneous Sensor Data (with Z. Yang and J. F. Lee)	*Proceedings of the 1992 IEEE/RSJ International Conference on Intelligent Robots and Systems*, Raleigh, NC, pp. 1071-1078	Refereed Conference Proceedings

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41	1993	PIX: An Object-Oriented Network Graphics Environment (with D. L. Huynh, M. Jensen, R. Larsen, J. Southard, Y. Wang, and A. Mangaser)	*International Journal of Computers & Graphics.* Vol. 17, No. 3, pp. 295-304	Article
42	1994	On 3D Model Construction by Fusing Heterogeneous Sensor Data (with Jih-Fang Wang)	*CVGIP: Image Understanding.* Vol. 60, No. 2, pp. 210-229	Article
43	1994	A Speech-Directed Multi-Modal Man-Machine Interface for Robotically Enhanced Surgery (with D. R. Uecker, C. Lee, and Yulun Wang)	*Proceedings of the first International Symposium on Medical Robotics and Computer Assisted Surgery*, Pittsburgh, PA, pp. 176-183	Refereed Conference Proceedings
44	1994	Image Analysis for Automated Tracking in Robot-Assisted Endoscopic Surgery (with C. Lee, D. R. Uecker, and Yulun Wang)	*Proceedings of the 12th International Conference on Pattern Recognition*, Jerusalem, Israel, pp. 88-92	Refereed Conference Proceedings (oral: 12%)
45	1994	Static Global Scheduling for Optimal Computer Vision and Image Processing Operations on Distributed-Memory Multiprocessors (with C. H. Lee and T. Yang)	*Technical Report TRCS 94-23*, Department of Computer Science, University of California, Santa Barbara	Technical Report
46	1994	Learning in Eigenspace: Theory and Application (with B. S. Manjunath and S. Chandrasekaran)	*Technical Report CIPR 94-17*, CIPR, University of California, Santa Barbara	Technical Report
47	1995	Static Global Scheduling for Optimal Computer Vision and Image Processing Operations on Distributed-Memory Multiprocessors (with C. H. Lee and T. Yang)	*Proceedings of International Conference on Computer Analysis of Images and Patterns*, Prague, Czech Republic, pp. 920-925	Refereed Conference Proceedings
48	1995	Partitioning and Scheduling for Parallel Image Processing Operations (with C. H. Lee and T. Yang)	*Proceedings of the Seventh IEEE Symposium on Parallel and Distributed Processing*, San Antonio, TX, pp. 86-90	Refereed Conference Proceedings
49	1995	An Eigenspace Update Algorithm for Image Analysis (with B. S. Manjunath and S. Chandrasekaran)	*Proceedings of International Symposium on Computer vision*, Miami, FL, pp. 551-556	Refereed Conference Proceedings
50	1996	Error Analysis of 3D Shape Construction From Structured Lighting (with Z. Yang)	*Pattern Recognition*, Vol. 29, No. 2, pp. 189-206	Article

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51	1996	An Eigenspace Update Algorithm for Image Analysis (with S. Chandrasekaran, B. S. Manjunath, J. Winkeler, and H. Zhang)	*Technical Report TRCS 96-04*, Department of Computer Science, University of California, Santa Barbara	Technical Report
52	1996	Automated Instrument Tracking in Robotically-Assisted Laparoscopic Surgery (with D. R. Uecker, C. Lee, Y. Wang)	*Journal of Image Guided Surgery*	Article
53	1996	Choreographed Scope Maneuvering in Robotically-Assisted Laparoscopy with Active Vision Guidance (with D. R. Uecker and Y. Wang)	*Workshop on Applications of Computer Vision*, Saratoga, FL, pp. 187-192	Refereed Conference Proceedings (oral: 25%)
54	1997	An Eigenspace Update Algorithm for Image Analysis (with S. Chandrasekaran, B. S. Manjunath, J. Winkeler, and H. Zhang)	*CVGIP: Graphic Models and Image Processing*, Vol. 59, No. 5, pp. 321-332	Article
55	1997	Global Optimization for Mapping Parallel Image Processing Tasks on Distributed Memory Machines (with C. H. Lee, and Tao Yang)	*Journal of Parallel and Distributed Processing*, Vol. 45, pp. 29-45	Article
56	1998	3D Shape and Motion Analysis from Image Blur and Smear: A Unified Approach (with P. Liang)	*International Conference on Computer Vision,* Bombay, India, January, pp. 1029-1034	Refereed Conference Proceedings (20%)
57	1998	Local Scale Controlled Anisotropic Diffusion with Local Noise Estimate for Image Smoothing and Edge Detection (with P. Liang)	*International Conference on Computer Vision,* Bombay, India, January, 1998, pp. 193-200	Refereed Conference Proceedings (20%)
58	1998	A Unified Framework for Image-Derived Invariants (with Ronald-Bryan O. Alferez),	*3rd Asian Conference on Computer Vision,* Hong Kong, January, 1998, pp. 400-407	Refereed Conference Proceedings
59	1998	A New Framework for Vision-Enabled and Robotically-Assisted Minimally Invasive Surgery (with D. R. Uecker and Y. Wang)	*Computerized Medical Imaging and Graphics* Vol. 22, 1998, pp. 429-437	Article
60	1999	Geometric and Illumination Invariants for Object Recognition (with Ronald Alferez)	*IEEE Transactions on PAMI*, Vol. 21, pp. 505-536	Article

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61	1999	Image Indexing and Retrieval Using Image-Derived, Geometrically and Illumination Invariant Features (with Ronald Alferez)	*Proceedings of IEEE International Conference on Multimedia Computing and Systems*, Florence, Italy, pp. 177-182	Refereed Conference Proceedings
62	1999	Highly Discriminative Invariant Features for Image Matching (with Ronald Alferez)	*Proceedings of the Third International Conference On Visual Information Systems,* Amsterdam, the Netherlands, pp. 435-442	Refereed Conference Proceedings
63	1999	Database Indexing using a Combination of Invariant Shape and Color Descriptions (with Ronald Alferez)	*Proceedings of the Second International Conference on Information Fusion*, Sunnyvale, CA, pp. 688-695	Refereed Conference Proceedings
64	2000	VCME: A Visual Interactive Environment for Computational Modeling Systems (with Y. Chen, A. Saran, and T. Smith)	*Encyclopedia of Microcomputers,* Vol. 24, 2000, pp. 333-372	Article
65	2001	Invariant, Intra-Class Retrieval in Homogeneous Databases (with Ronald Alferez)	*Proceedings of International Conference on Multimedia and Expo* Tokyo, Japan, pp. 177-182	Refereed Conference Proceedings
66	2001	Automated Image Rectification in Video-Endoscopy (with D. Koppel and Hua Lee)	*Proceedings of the International Conference on Medical Image Computing and Computer-Assisted Intervention* Utrecht, the Netherlands, pp. 1412-1414	Refereed Conference Proceedings (23%)
67	2001	The Use of Bigrams to Enhance Text Categorization (with C. M. Tan and C. D. Lee)	*International Journal of Information Processing & Management*, pp. 529-546	Article
68	2001	A Distributed Protein Visualization Application (with T. Can, Y. J. Wang, and J. Su)	*Proceedings of the third International Conference on Bioinfomatics*, Atlanta, GA	Software demo
69	2002	Improving Text Categorization with High Quality Bigrams, (with Chan-Do Lee and Chade-Meng Tan)	*The KIPS Transactions: Part B* Vol. 9-B, No. 4, 2002, pp. 415-420	Article
70	2002	Viewing Enhancement in Video-Endoscopy (with D. Koppel and Hua Lee)	*Proceedings of the Workshop on Applications Computer Vision*, Orlando, FL, pp. 304-307	Refereed Conference Proceedings (oral: 25%)

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71	2003	Fast Protein Visualization using Java3D (with T. Can, Y. Wang, and J. Su)	*Proceedings of the Eighteenth Annual ACM Symposium on Applied Computing*, Melbourne, FL, pp. 88-95	Refereed Conference Proceedings
72	2003	Multi-camera Spatio-temporal Fusion and Biased Sequence-data Learning for Security Surveillance (with G. Wu, Y. Wu, L. Jiao and E. Y. Chang)	*Proceedings of ACM Multimedia Conference*, Berkeley, CA, pp. 528-538	Refereed Conference Proceedings (17%)
73	2003	Real-Time Multi-person Tracking in Video Surveillance (with K. Wu, J. Long and D. Han)	*Proceedings of the Pacific Rim Multimedia Conference*, Singapore, pp. 2C1 1 - 5	Refereed Conference Proceedings (30%)
74	2003	Invariant Feature Extraction and Biased Statistical Inference for Video Surveillance (with Y. Wu, L, Jiao, G. Wu, and E. Chang)	*Proceedings of the IEEE International Conference on Advanced Video and Signal-based Surveillance*, Miami, FL, pp. 284-289	Refereed Conference Proceedings
75	2003	Fast Protein Visualization using Java3D, (with T. Can, Y. J. Wang, and J. Su)	*Bioinformatics*, Vol. 19, pp. 1-10	Article
76	2003	CTSS: A Robust and Efficient Method for Protein Structure Alignment Based on Local Geometrical and Biological Features (with T. Can)	*Proceedings of the IEEE Computer Society Bioinformatics Conference*, Stanford, CA, pp. 169-179	Refereed Conference Proceedings (18%)
77	2003	Personalized Annotation and Information Sharing in Protein Science with Information-Slips (with Y. Wang, T. Can, And J. Su)	*Proceedings of the 2nd International Conference on Information and Knowledge Sharing*, Phoenix, AZ, pp. 299-304	Refereed Conference Proceedings
78	2004	Image-Based Rendering and Modeling in Video-Endoscopy (with D. Koppel and Hua Lee),	*Proceedings of the International Symposium on Biomedical Imaging*, Arlington, VA, pp. 272-279	Refereed Conference Proceedings
79	2004	Toward Real-Time, Physically-Correct Soft Tissue Behavior Simulation, (with Dan Koppel and Shivkumar Chandrasekaren)	*Proceedings of the International Symposium on Biomedical Imaging*, Arlington, VA, pp. 185-188	Refereed Conference Proceedings
80	2004	ProGreSS: Simultaneous Searching of Protein Databases by Sequence and Structure, (with A. Bhattacharya, T. Can, T. Kahveci and A. K. Singh)	*Proceedings of the Pacific Rim Bioinformatics Conference*, Hawaii, 2004, pp. 264-175	Refereed Conference Proceedings

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81	2004	Automated Protein Classification Using Consensus Decision, (with T. Can, O. Camouglu and, A. Singh)	*Proceedings of the IEEE Computer Society Bioinformatics Conference*, Stanford, CA, pp. 224-235	Refereed Conference Proceedings (15%)
82	2004	Toward Building a Robust and Intelligent Video Surveillance System: A Case Study, (with E. Y. Chang)	*Proceedings of the the IEEE International Conference on Multimedia Systems and Expo*, Taipei, Taiwan, pp. 1391-1394	Refereed Conference Proceedings
83	2004	The SfinX Video Surveillance System, (with Raju Rangaswami, Zoran Mimitrijevic, Keyle Kakligian and E. Y. Chang)	*Proceedings of the IEEE International Conference on Multimedia Systems and Expo*, Taipei, Taiwan, pp. 151-160	Refereed Conference Proceedings
84	2004	Human Activity Detection and Recognition for Video Surveillance, (with K. Niu, J. Long and D. Han)	*Proceedings of the IEEE International Conference on Multimedia Systems and Expo*, Taipei, Taiwan, pp. 719-722	Refereed Conference Proceedings
85	2004	Distributed Video Data Fusion and Mining, (with Edward Y. Chang and Volkan Rodoplu)	*Proceedings of SPIE Defense and Security Symposium,* Orland, FL, pp. 222-233	Refereed Conference Proceedings
86	2004	Adaptive Stream Resource Management Using Kalman Filter (with Ankur Jain and Edward Chang)	*Proceedings of the ACM Sigmod Conference*, France, pp. 11-22	Refereed Conference Proceedings (16%)
87	2004	Protein Structure Alignment and Fast Similarity Search Using Local Shape Signatures, (with T. Can)	*Journal of Bioinformatics and Computational Biology*, Vol. 2, No. 1, pp. 215-239	Article
88	2005	The Anatomy of A Multi-Camera Video Surveillance System (with L. Jiao, G. Wu, Y. Wu, and E. Y. Chang)	*ACM Multimedia System Journal*, Vol. 10, pp. 144-163	Article
89	2005	Robust and Real-Time Image Stabilization and Rectification (with D. Koppel and Hua Lee)	*Proceedings of the Workshop on Applications of Computer Vision*, Breckenridge, CO, pp. 350-355	Refereed Conference Proceedings (oral: 25%)
90	2005	EXTENT: Inferring Image Metadata from Context and Content (with C.-M. Tsai, A. Qamra, and E. Chang)	*Proceedings of International Conference on Multimedia and Expo*, Taipei, Taiwan, pp. 1270-1273	Refereed Conference Proceedings

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91	2005	An Affine-Invariant Tool for Retrieving Images from Homogeneous Databases (with Ronald Alferez and L. Jiao)	*Multimedia Tools and Applications*, Vol. 25, pp. 133-159	Article
92	2005	Decision Tree Based Information Integration for Automated Protein Classification (with T. Can, O. Camouglu and A. Singh)	*Journal of Bioinformatics and Computational Biology*, Vol. 3, June, pp. 717-742,	Article
93	2005	Upper Limb Position Sensing: A Machine Vision Approach (with Dianna Han and Doug Kuschner)	*Proceedings of 2nd IEEE EMBS Conference on Neural Engineering*, Arlington, VA, pp. 490-493	Refereed Conference Proceedings
94	2005	A System for Limb Modeling, Position Sensing and Stimulation Control (with Dianna Han and Doug Kuschner)	*Proceedings of the 10th Anniversary IFESS Conference*, Montreal, Canada, pp. 537-544	Refereed Conference Proceedings
95	2005	A Video Analysis Framework for Soft Biometry Security Surveillance (with E. Chang and K. P. Cheng)	*Proceedings of the ACM Workshop on Video Surveillance and Sensor Networks*, Singapore, pp. 71-78	Refereed Conference Proceedings
96	2006	Using Stationary-Dynamic Camera Assemblies for Wide-area Video Surveillance and Selective Attention (with A. Jain, D. Koppel, and K. Kaligian)	*Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition,* New York, NY, pp. 537-544	Refereed Conference Proceedings (20%)
97	2006	Identify Color in Motion in Video Sensor (with G. Wu, D. Koppel, K. S. Goh, T. Tsai, K. Kaligian, and A. Jain)	*Proceedings of the IEEE Computer Society Conference on Computer Vision and Pattern Recognition,* New York, NY pp. 561-569	Refereed Conference Proceedings (20%)
98	2006	Efficient Molecular Surface Generation Using Level-Set Methods (with T. Can and C.-I. Chen)	*Journal of Molecular Graphics and Modeling,* Vol. 25, pp. 442-454	Article
99	2007	Bayesian Reasoning for Sensor Group-Queries and Diagnosis (with A. Jain and E. Chang)	*Proceedings of Database Systems for Advanced Applications,* ppp. 522-538, Bangkok, Thailand	Refereed Conference Proceedings (17%)
100	2007	Toward Automated Model Building from Video in Computer Assisted Diagnoses in Colonoscopy (with D. Koppel, C.-I. Chen, Hua Lee, Jia Gu, A. Poirson, and R. Wolters)	*Proceedings of the SPIE Medical Imaging Conference,* San Diego, CA, pp. L1-L9.	Refereed Conference Proceedings

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101	2008	Regularizing Optical-Flow Computation using Tensor Theory and Complex Analysis (with D. Koppel and Chang-Ming Tsai)	*Proceedings of CVPR Workshop on Tensors in Image Processing and Computer Vision,* Anchorage, AL, pp. 1-6.	Refereed Workshop Proceedings
102	2008	A New Framework for Behavior Modeling of Organs and Soft Tissue using the Boundary-Element Methods (with D. Koppel and Shiv Chandrasekaran)	*Proceedings of CVPR Workshop on Non-rigid Shape Analysis and Deformable Image Alignment,* Anchorage, AL, pp. 1-6.	Refereed Workshop Proceedings
103	2008	Contrast Compensation for Back-lit and Front-lit Color Face Images via Fuzzy Logic Classification and Image Illumination Analysis (with C-M. Tsai and Z.-M. Yeh)	*Proceedings of International Conference on Machine Learning and Cybernetics,* Taipei, Taiwan, pp. 3563-3568.	Refereed Conference Proceedings
104	2008	Stabilizing Stereo Correspondence Computation Using Delaunay Triangulation and Planar Homography (with C.-I. Chen, D. Sargent, C.-M. Tsai and D. Koppel)	*Lecture Notes in Computer Science, 4th International Symposium on Visual Computing (ISCV)*, Las Vegas, NV, vol. 5358, pp. 846-855.	Refereed Conference Proceedings
105	2009	Uniscale Multi-view Registration Using Double Dog-Leg Method (with C.-I. Chen, D. Sargent, C.-M. Tsai and D. Koppel)	*Proceedings of the SPIE Medical Imaging Conference*, San Diego, CA.	Refereed Conference Proceedings
106	2009	Feature Detector and Descriptor for Medical Images (with C.-I. Chen, D. Sargent, C.-M. Tsai, and D. Koppel)	*Proceedings of the SPIE Medical Imaging Conference*, San Diego, CA.	Refereed Conference Proceedings
107	2009	Smoke Detection in Video (with D. K. Kim)	*World Congress on Computer Science and Information Engineering*, Los Angeles, CA, pp.759-763.	Refereed Conference Proceedings
108	2009	Decision Tree-Based Contrast Enhancement for Various Color Images (with C-M. Tsai and Z.-M. Yeh)	*Machine Vision and Applications*, Sep. 2009	Article
109	2010	Modeling Tumor/Polyp/Lesion Structure in 3D for Computer-Aided Diagnosis in Colonoscopy (with C.-I. Chen and D. Sargent)	*Proceedings of the SPIE Medical Imaging Conference*, San Diego, CA.	Refereed Conference Proceedings
110	2010	Cross Modality Registration of Video and Magnetic Tracker Data for 3D Appearance and Structure Modeling (with D. Sargent and C.-I. Chen)	*Proceedings of the SPIE Medical Imaging Conference*, San Diego, CA.	Refereed Conference Proceedings

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111	2006	Robust Perceptual Color Identification (with K.S. oh, and E. Chang)	*US Patent 7,136,524*	Patent
112	2011	Multi-View Stereo Point Clouds Visualization (with Yi Gong)	*Proceedings of International Symposium on Visual Computing*, Lake Tahoe, CA.	Refereed Conference Proceedings
113	2011	Adaptive multi-modal integrated biometric identification detection and surveillance systems (with E. Chang and K. Cheng)	*US Patent 7,956,890*	Patent
114	2011	PhotoModel3D: A Photo- and Video-based 3D Modeling Tool	*http://rogue.cs.ucsb.edu/PhotoModel3D/webUpload.html*,	Public Software Release
115	2011	PhotoNav3D: A Spatially-Aware Photo Browsing Tool	*http://rogue.cs.ucsb.edu/PhotoNav3D/ webUpload.html*,	Public Software Release
116	2011	Mosaic3D: A Panoramic Image Stitching Tool	*http://rogue.cs.ucsb.edu/Mosaic3D/ webUpload.html*,	Public Software Release
117	2013	Front Vehicle Blind Spot Translucentization Based on Augmented Reality (with Che-Tsung Lin, Yu-Chen Lin, and Long-Tai Chen)	*Proceedings of IEEE Vehicular Technology Conference*, Las Vegas, CA.	Refereed Conference Proceedings
118	2014	Enhancing Vehicular Safety in Adverse Weather using Computer Vision Analysis (with Che-Tsung Lin, Yu-Chen Lin, and Long-Tai Chen)	*Proceedings of the 80th IEEE Vehicular Technology Conference*, Vancouver, Canada.	Refereed Conference Proceedings
119	2014	Photo- and Video-based Ranging and Modeling	*International Telemetering Conference*, San Diego, CA.	Refereed Conference Proceedings
120	2015	Learning a Mahalanobis Distance-Based Dynamic Time Warping Measure for Multivariate Time Series Classification (with Jiangyuan Mei, Meizhu Liu, and Jujun Gao)	*IEEE Transactions on Cybernetics*, May 2015	Article

#	YEAR	TITLE and AUTHORS	PUBLISHER	CATEGORY
121	2015	Evaluation, Design and Application of Object Tracking Technologies for Vehicular Technology Applications (with Che-Tsung Lin and Long-Tai Chen)	*Proceedings of the 81st IEEE Vehicular Technology Conference*, Boston, MA.	Refereed Conference Proceedings
122	2015	Computer Vision Analysis for Vehicular Safety Applications	*International Telemetering Conference*, Las Vegas, CA.	Refereed Conference Proceedings
123	2016	Robust and Efficient Tracking with Large Lens Distortion for Vehicular Technology Applications (with Che-Tsung Lin and Long-Tai Chen)	*Proceedings of the 83rd IEEE Vehicular Technology Conference*, Montreal, Canada.	Refereed Conference Proceedings
124	2017	Virtual Dictionary based Kernel Sparse Representation for Face Recognition (with Zizhu Fan, Da Zhang, xing Wang and Qi Zhu)	*Pattern Recognition*, Oct, 2017	Article
125	2017	Detail Enhancement of Image Super-Resolution based on Detail Synthesis (with Jinsheng Xiao, Hong Tian and Yuli Kuang)	*Signal Processing: Image Communication*, Vol. 50, pp 2-33.	Article
126	2017	Multimodel Transfer: A hierarchical Deep Convolutional Network for Fast Artistic Sytle Transfer (with X. Wang G. Oxholm and D. Zhang),	*IEEE CVPR Conference* , Hawaii, August	Refereed Conference Proceedings (15%)
127	2017	Deep Reinforcement Learning for Visual Object Tracking in Videos (with Da Zhang, Hamid Maei, and Xin Wang)	*arXiv preprint arXiv:1701.08936, 2017*	Preprint
128	2018	Video Captioning via Hierarchical Reinforcement Learning (with Xin Wang, Wenhu Chen, Jiawei Wu and William Wang)	*IEEE CVPR Conference* , Utah, June	Refereed Conference Proceedings (15%)
129	2018	Watch, Listen, and Describe: Globally and Locally Aligned Cross-Modal Attentions for Video Captioning (with Xin Wang and William Wang)	*North American Chapter of the Association for Computational Linguistics: Human Language Technologies* , New Orleans, LA, June	Refereed Conference Proceedings
130	2018	S3D: Single Shot multi-Span Detector via Fully 3D Convolutional Network (with Da Zhang, Xiyang Dai and Xin Wang)	*British Machine Vision Conference*, England, September	Refereed Conference Proceedings (oral, 4.3%)

#	YEAR	TITLE and AUTHORS [a]	PUBLISHER	CATEGORY[b]
131	2018	Video Denoising Algorithm Based on Improved Dual-domain Filtering and 3D Block Matching (with Jinsheng Xiao, W. Zhou, S. Zhang J. Lei, and W. Wang)	*IET Image Processing*, Vol. 12, pp 2250-2257	Article
132	2016	Robust and Efficient Tracking with Large Lens Distortion for Vehicular Technology Applications for Vehicular Technology Applications (with Che-Tsung Lin, Way Chen and Long-Tai Chen) web link	*Proceedings of IEEE Vehicular Technology Conference*, September 2016, Montreal, Canada.	Refereed Conference Proceedings
133	2017	Detail Enhancement of Image Super-Resolution based on Detail Synthesis (with J. Xiao, E. Liu, L. Zhao, and W. Jiang) web link	*Signal Processing: Image Communication*, Vol. 50, February, 2017, pp. 2-33.	Journal Article
134	2017	Multimodel Transfer: A Hierarchical Deep Convolutional Network for Fast Artistic Style Transfer (with X. Wang, G. Oxholm, and D. Zhang) web link	IEEE CVPR Conference, Hawaii, August 2017.	Refereed Conference Proceedings (20%)
135	2017	Deep Reinforcement Learning for Visual Object Tracking in Videos (with D. Zhang, H. Maei, and X. Wang) web link	UCSB Technical Report, July 2017.	Technical Report
136	2018	Virtual Dictionary based Kernel Sparse Representation for Face Recognition (with Z. Fan, D. Zhang, and Q. Zhu) web link	*Journal of Pattern Recognition*, Vol. 76, 2018, pp. 1-13.	Journal Article
137	2018	Video Captioning via Hierarchical Reinforcement Learning (with X. Wang, W. Chen J. Wu, and William Wang) web link	IEEE CVPR Conference, Salt Lake City, Utah, June 2018.	Refereed Conference Proceedings (20%)

[a] Item numbers in red are clickable web links
[b] Highly competitive conference acceptance rates and honor of oral presentation, if known, are included

#	YEAR	TITLE and AUTHORS [a]	PUBLISHER	CATEGORY[b]
138	2018	Watch, Listen and Describe: Globally and Loally Aligned Cross-Model Attention for Video Captioning (with X. Wang and William Wang) web link	North American Chapter of the Association for Computational Linguistics: Human Language Technologies (NAACL-HLT), New Orleans, LA, June 2018.	Refereed Conference Proceedings
139	2018	No Metrics Are Perfect: Adversarial Reward Learning for Visual StoryTelling (with X. Wang, W. Chen, and William Wang) web link	56th Annual Meeting of the Association for Computational Linguistics (ACL), Melbourne, Australia, June 2018.	Refereed Conference Proceedings (Oral Presentation, 20%)
140	2018	S3D: Single Shot multi-Span Detector via Fully 3D Convolutional Network (with Da Zhang, Xiyang Dai and Xin Wang) web link	British Machine Vision Conference (BMCV) Newcastle, England, September 2018.	Refereed Conference Proceedings (Oral Presentation, 4.3%)
141	2018	Dynamic Temporal Pyramid Network: A Closer Look at Multi-Scale Modeling for Activity Detection (with Da Zhang and Xiyang Dai) web link	ACCV , Perth, Australia, December 2018.	Refereed Conference Proceedings (Oral Presentation, 4.5%)
142	2019	MAN: Moment Alignment Network for Natural Language Moment Retrieval via Iterative Graph Adjustment (with Da Zhang, Xiyang Dai, Xin Wang, and Larry Davis) web link	IEEE CVPR Conference, Long Beach, June, 2019.	Refereed Conference Proceedings (20%)
143	2019	Reinforced Cross-Modal Matching and Self-Supervised Imitation Learning for Vision-Language Navigation (with Xin Wang, Qiuyuan Huang, Asli Celikyilmaz, Jianfeng Gao, Dinghan Shen, William Yang Wang, and Lei Zhang) web link	IEEE CVPR Conference, Long Beach, June, 2019.	Refereed Conference Proceedings (Best Student Paper Award, 0.01%)

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#	YEAR	TITLE and AUTHORS [a]	PUBLISHER	CATEGORY[b]
144	2019	VaTex: a Large-Scale, High-Quality Multilingual Dataset for Video-and-language Research (with Xin Wang, Jiawei Wu, Junkun Chen, Lei Li, and William Yang Wang) web link	International Conference on Computer Vision, Souel, Korea, November, 2019.	Refereed Conference Proceedings (Oral presenataion, 4.5%
145	2020	Vision-Language Navigation Policy Learning and Adaptation (with Xin Wang, Qiuyuan Huang, Asli Celikyilmaz, Jianfeng Gao, Dinghan Shen, William Yang Wang, and Lei Zhang) web link	IEEE Transactions on PAMI, 2020	Article
146	2020	METAL: Minimum Effort Temporal Activity Localization in Untrimmed Videos (with Da Zhang and Xiyang Dai) web link	IEEE CVPR Conference, Seattle, WA 2020	Referred Conference Proceedings (Oral presentation, 4%)
147	2020	Towards Effective and Efficient Temporal Activity Detection (with Da Zhang, Xiyang Dai, and Xin Wang) web link	submitted for publication in International Journal of Computer Vision	Article
148	2022	Generative adversarial network with hybrid attention and compromised normalization for multi-scene image conversion (with Jinsheng Xiao, Shuhao Zhang, Yuntao Yao, ZhongYuan Wang and Yongqin Zhang)	*Neural Computing and Applications*, 2022	Article
149	2022	VERN: VolleyBall Rally Dataset with Expression Notation Language (with Haotain Xia, Rhys Tracy, Erwan Fraisse, and Linda Petzold)	*IEEE International Conference on Knowledge Graphs*, Oct 2022	Refereed Conference Proceedings
150	2023	FDLR-Net: A Feature Decoupling and Localization Refinement Network for object detection in Remote Sensing Images (with Jinsheng Xiao, Yuntao Yao; Jian Zhou, Haowen Guo and Qiuze Yu)	*International Journal of Applied Earth Observation and Geoinformation*	Article (under review)

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