ACADEMIC VITAE

Sudhanshu Kumar Semwal

ADDRESS

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AREAS OF INTEREST

Computer Graphics, Wearable Computing and Virtual Reality, Computer-Human Interaction, Medical Applications, Human Animation and Avatars, Volume Rendering and Visualization, Realistic Images, Ray Tracing, Computational Geometry.

PERSONAL

US citizen; Married; two children; avid tennis player.

PROFESSIONAL EXPERIENCE

August 2000-to-date: Professor (tenured), Department of Computer Science, University of Colorado, Colorado Springs, Colorado.

January 2002 - Summer 2002: Interim Chair, Department of Computer Science, University of Colorado, Colorado Springs, Colorado.

August 1994-August 2000: Associate Professor (tenured), Department of Computer Science, University of Colorado, Colorado Springs, Colorado.

August 1987-August 1994: Assistant Professor, Department of Computer Science, University of Colorado, Colorado Springs, Colorado.

Summer Research: July-August 2003 with Dr. N. Hagita; July 2002 with Dr. Kenji Mase; May 99-August 99, May 98-August 98, and May 97-August 97 with Dr. Jun Ohya at the Multi-Media and Integration Research Laboratory, Advanced Telecommunication Research (ATR), Kyoto, Japan.

June 1995-October 1995: Faculty Sabbatical, worked with Dr. Sharon Stansfield at the Virtual Reality/Intelligent Simulation (VR/IS) Laboratory, Sandia National Laboratory, Albuquerque, NM. Supported by the Department of Energy grant, under Contract DE-ACO4-94AL85000.

September 1991-August 1992: Visiting Researcher, Central Research Laboratory, Matsushita Electric Industrial Co. Ltd, Osaka, Japan. On one year leave from the University of Colorado. Sponsored by The Government of Japan (Japan Key Technology Scholarship) and Matsushita.

August 1984-August 1987: Graduate Teaching and Research Assistant, Department of Computer Science, University of Central Florida, Orlando; February 1984-May 1984: Laboratory assistant in Electrical Engineering Department, University of Central Florida, Orlando; August 1982-December 1983: Graduate Research Assistant for the CIAD (Communication and Interactive Access to spatially distributed Databases) Project at the Department of Computing Science, University of Alberta, Edmonton; August 1981-December 1983: Graduate Teaching Assistant at the Department of Computing Science, University of Alberta, Edmonton.

August 1980-June 1981: Associate Software Engineer, R&D Section, DCM Data Products, New Delhi, India.

EDUCATION

Summer 1987: Ph.D. in Computer Science, University of Central Florida, Orlando, Florida. Dissertation: *The Slicing Extent Technique for Fast Ray Tracing.* Dissertation Advisor: Dr. J. Michael Moshell.

Spring 1984: M.Sc. in Computing Science, Department of Computing Science, University of Alberta, Edmonton, Canada. Thesis: *Data Structures for Spatial Information.* Thesis Advisor: Dr. Wayne A. Davis.

June 1980: B.E. in Electronics and Communication Engineering, University of Roorkee, Roorkee, U.P., India. Project: *Data Communication through Telephones Lines and Interfacing with a Computer.* Project Advisor: Dr. Harpreet Singh.

FUNDING, PATENTS, SCHOLARSHIPS AND RESEARCH SUPPORT

Summer support (approximately $10,000 in Yen) Advanced Telecommunication Research Lab International, Kyoto, Japan, Summer 2003 Worked in the area of medical wearable computing applications.

Animation-Celebration Course funded by D-11. D1-UCCS Pilot program with District Schools to be offered June 16-27, 2003 to ten sixth graders from D-11 ($2,340).

Haptic Jackets and Wearable Visual Displays for the Secure Global Share System (funded) $12,000, NISSC-AFOSR supported grant (Summer 2003)

Mobile-Plates Wearable Computer and Haptic-Imprints (funded) $13,000, NISSC-AFOSR supported Grant (Fall 2003).

Collage-of-Images: An Augmented Reality Wearable System for Simultaneous Sharing of Secure Information using Simple Images, (funded) $5,000, NISSC-AFOSR supported grant (Spring 2004).

PI for RDC, EAS, UCCS grant $3,500 for supporting a student in the Wearable Computing Lab for Spring 2003. (funded) Supported Sean Pedersen.

ElPomar Research Scholarship awarded to support a PhD graduate student (Richard Doyle) for three years for $20,000/year (Richard Doyle passed the PhD qualifier Fall 2003).

Summer support (approximately $10,000 in Yen) Advanced Telecommunication Research Lab International, Kyoto, Japan, Summer 2002 Worked in the area of Wearable Computing (Toy Interfaces with Dr. K. Mase.

Intel Grant ($50,000) to Department of Computer Science through CU Foundation (Ms. Maurine Dijani), with Dr. Peter Gorder of MAE (Spring 2002).

Arranged one year full-support for David Norman at ATR, Japan (April 2003-March2004). The student is conducting state of the art research at ATR, a world renowned research lab considered the premier research laboratory in Japan (estimated at $40,000-$50,000 including support for housing etc).

One of the PIs for the Colorado Institute of Technology grant with Ed Chow, Terry Boult, J Kalita, Ziemer etc., rated high in the proposal review stage, (denied) Summer 2003.

DARPA STTR Topic ST031-004 Phase 1 Proposal with Barry Wolt and GL Plett, ($100,000) (denied) Spring 2003.

Avian and Haptic Help for the Visually Impaired, PI with ATR, Japan, Colorado School of Deaf and Blind, and Animal Instincts, NSF (denied) $638,071.

NSF Proposal for Digital Archiving for three dimensional motion capture data and generating complex animation sequences (Fall 2004)(denied)($154,189).

NSF Proposal Biologically motivated Personalized Computation Forms (denied).

Colorado Institute of Technology grant with University of Colorado, Denver professors: Dr. Clark Stricklend, Dr. Min Choi, and Dr. Paul Connors, requested $40,486 out of $194,200 grant for UCCS (denied).

I am part of a consortium on *Non-Verbal Information Processing* which is organized by ATR, Media Integration and Research Laboratory, Kyoto, Japan. The consortium members are professors from CMU, U of Pittsburgh, U of British Columbia, Seikei University, U. of Illinois, Chicago, U College, Dublin, and my University. The first meeting of this consortium was held on Jan 30th and 31st, 1999, at the University of Colorado, Colorado Springs. Funding of 2Million Yen (approximately $18,000 in 2000-20001).

Japanese Patent awarded on the Scan&Track Virtual Environment, (ATR/University of Colorado, Colorado Springs), June 1998.

Japan Key Technology Scholarship: approx $75,000 (Converted from Yen). Sponsored by The Government of Japan (Japan Key Technology Scholarship) and Matsushita Electric Industrial Co. Ltd, Osaka, Japan. (September 1991 - August 1992). Matsushita also supported my student Douglas Dow for three years in Osaka $150,000.

Summer Research Support: $42,000 at the Advanced Telecommunication Research (ATR) Multi-Media and Integration Research Laboratory, Kyoto, Japan 619-02 (May 99-August 99).

Summer Research Support: $40,000 at the Advanced Telecommunication Research (ATR) Multi-Media and Integration Research Laboratory, Kyoto, Japan 619-02 (May 98-August 98).

Summer Research Support: $30,000 at the Advanced Telecommunication Research (ATR) Multi-Media and Integration Research Laboratory, Kyoto, Japan 619-02 (May 97-August 97).

Sabbatical Summer Support: $20,000 at the Virtual Reality/Intelligent Simulation (VR/IS) Laboratory, Sandia National Laboratory, Albuquerque, NM. Supported by Department of Energy grant under Contract DE-ACO4-94AL85000 (June 1995 - October 1995).

IBM-UCCS-Redwood (ROLM) Project: $46,902.00. Designing a User Interface. (November 1988 to September 1989). Two Silicon Graphics IRIS Indigo systems were also acquired.

Small Grants Total: $30,600. CRCW, UCCS in house grant: $5000, Applying Virtual Reality for Mobility Training of Visually Impaired Person using the PHANToM force feedback device (1997); Engineering and Applied Science, Grigsby Trust Fund: $2600, the Enclosing Net Algorithm for Volume Rendering: Applying Virtual Reality to Medical Imaging (1997); Colorado Campus Contact Grant for $2,000 towards purchase of PHANToM force feedback device; CRCW, UCCS in house grant: $5000, Tele-Training: Applying Virtual Reality for Training Premier (Olympic) Athletes by Simulating Air Flow around a Cyclist. Summer Support (1994); Olympic Training Center, Colorado Springs: $5000, Science and Technology Grant, S93-036-A-CY with Professor Edmund R Burke, Associate Professor, Biology Department, University of Colorado, Animating the Cycling Motion of Premier Athletes in the Olympic Cycling Team (1993); Engineering and Applied Science, Grigsby Trust Fund: $2500, Interactive surgery (1990); Engineering and Applied Science, Grigsby Trust Fund: $3500, Controlling Fractals (1989); CRCW, UCCS in house grant: $2500, Neural Nets and Universal Parallel Systems (1989). Software donation of ACIS Geometric Modeler from Spatial Technology Inc., Boulder, Colorado for one SGI system $2500 (1993).

Activities as Chair of CS Department

As the Interim Chair (Spring and part of Summer 2002): organized departmental meetings; balanced the budget for academic year; negotiated three El-Pomar research assistantships for the department; worked on PhD options for the department; Department Infrastructure issues and lab equipment purchases; wrote Intel Grant ($50,000); Chair of Search Committee - out of 80 or more applicant, interviewed eight, four offered, one accepted - setup interviews, hiring and employment related activities (2002). Member of EAS Promotions and Tenure Committee (2002); Member of Dean Search Committee (2002). Organized Vision2009 an exclusive one day meeting of CS faculty on department issues; Prepared paperwork for Best Teacher (Dr. Richard Wiener) and Best Employee (Ms. Rhea Taylor) for EAS awards; Prepared a nomination on behalf of CS Department for Unit-Merit Excellence Awards. Member Graduate Committee (2001-2002). Prepared course assignments for Summer 2002, 2003 (preliminary), Fall 2002, and Spring 2003 classes (preliminary).

PUBLICATIONS

JOURNAL PUBLICATIONS

[J–1] SK Semwal, David Bolt, Resolved Motion Control for High Degree of Freedom Articulated Figures, International journal of Modeling and Simulation pp. 1-12 (in second review).

[J–2] View Coherence Ray Tracing with Phil Gage, under review in Computer Graphics Forum journal (in review).

[J–3] Sudhanshu Kumar Semwal and Jun Ohya. *Spatial Filtering using the Active-Space Indexing Method*, in the **Graphical Models and Image Processing**, Academic Press journal, vol. 63, pp. 135-150 (2001).

[J–4] Iris Fermin, Sudhanshu Semwal, and Jun Ohya, *Indexing Method for Three-dimensional Position Estimation*, in the **IEICE Transactions on Information and Systems** journal, vol. E82-D, No. 12, pp. 1597-1604 (1999).

[J–5] Sudhanshu Kumar Semwal and Michael J. Parker, *Biomechanical Analysis, Animation and Visualization of the Leg Movements of the Olympic Cyclists*, in the **Real Time Imaging** journal, Academic Press, vol. 5, 109-123 (1999).

[J–6] Sudhanshu Kumar Semwal, Ron Hightower, and Sharon Stansfield, *Constant Time Mapping Algorithms for Real-Time Control of an Avatar using Eight Sensors*, **PRESENCE** journal, vol 6, no 1, pp./ 1-21, MIT Press (January 1998).

[J–7] Sudhanshu Kumar Semwal and Paul Gene Swann, *Linear and B-Spline Interpolation for Ray Casting the Flow Visualization Data*, the **Journal of Visualization and Computer Animation**, vol 6, no 1, pp./ 33-47, John Wiley & Sons, Inc (1995).

[J–8] Sudhanshu Kumar Semwal, *Ray Casting and the Enclosing Net Algorithm for Extracting Shapes from Volume Data*, the special issue on *Virtual Reality and Medicine* for the **Journal of Computers in Biology and Medicine**, vol 25, no 2, pp./ 261-276, (November 1994).

[J–9] Sudhanshu Kumar Semwal, J. Karl Armstrong, Douglas E. Dow, and Fumio E. Maehara. *Multi-Mouth Surfaces for Synthetic Actor Animation*, the **Visual Computer: An International Journal of Computer Graphics**, Springer Verlag, vol 10, no 7, pp. 388-406 (1994).

[J–10] Sudhanshu Kumar Semwal and John J. Halleuer, *Biomechanical Modeling: Implementing Line-of-Action Algorithm for Human Muscles and Bones using Generalized Cylinders*, in **Computers and Graphics: An International Journal**, Vol. 18, No. 1, pp. 105-112, Jose L. Encarnacao (Editor-in-Chief), Pergamon Press (1994).

[J–11] Sudhanshu Kumar Semwal, Charulata K. Kearney, and J. Mike Moshell, *The Slicing Extent Technique for Ray Tracing: Isolating Sparse and Dense Areas*, **IFIP Transactions**, vol. B-9, pp. 115-122 (1993). S.P. Mudur and S.N. Patnaik (Editors), Elsevier Science Publishers B.V. (North Holland). Also published in The International Conference on Computer Graphics, Bombay, India (1993).

[J–12] Sudhanshu Kumar Semwal, *A Proposal for using ANNs for CG Animation*, **CC-AI: The Journal for the Integrated Study of Artificial Intelligence, Cognitive Science and Applied Epistemology**, vol. 10, No. 1-2, pp. 93-106, 1993. New Trends on Neural Networks Symposium, Belgium 1992. F. Vandamme (Editor) (1993).

CONFERENCE PUBLICATIONS

[C–1] SK Semwal and K Chandrashekher, 3D Morphing for Volume Data, pp. 1-7, The 18th conference in Central Europe, on Computer Graphics, Visualization, and Computer Vision, WSCG 2005 Conference, January 2005.

[C–2] SK Semwal and Brad Baker, 3D visualization of 2D Topographic Data, IASTED EMS 2004 Conference, pp. 1-6, St. Thomas, Virgin Islands (November 2004).

[C–3] SK Semwal and Dustin Carroll, Collage of Patterns, accepted for publication at the International Conference of Artificial Tele-Existence, ICAT 2004, Nov 30 - December 2, 2004, Seoul, Korea.

[C–4] SK Semwal, K Chandrashekhea, D Carroll, A Deshmukh, N Bastian, Global Share System and Haptic Imprints, IEEE Internation Workshop on Haptic Audio Visual Environments, pp.1-6, Ottawa, Ontario, Canada, 2004.

[C–5] SK Semwal, B Baker, 3D Visualization of 2D Topographic data, IASTED Environmental Modeling and Simulation (EMS) 2004, St. John US Virgin Islands, November 22-24, pp. 1-6, 2004 (accepted for publication).

[C–6] Adrian Johnson and SK Semwal, Music as an Input Device, IEEE VR 2004 Workshop (Beyond Wand and Control) Proceedings, pp. 39-42 (2004).

[C–7] SK Semwal, R Dandapani, and Sean Pedersen, An exploration of Wearable Computing Techniques to Knee Replacement Implants, MMVR Conference January 2004.

[C–8] SK Semwal, N Kuwahara, K Kogure, N. Hagita, Medical Applications of Wearable Computing, ICMIT 2003 Conference, Korea, pp. 1-5 (2003).

[C–9] Sudhanshu Kumar Semwal and Per Sodren, *Haptic Help for Orientation in Virtual Environments* accepted for publication at the Proceedings of the HCI International 2003, Crete Greece, pp. 75-78, June 25-28, 2003.

[C–10] Jonathan Kip Knight and Sudhanshu Kumar Semwal, *Relativistic Ray Tracer* at the Proceedings of the IASTED International Conference, Modeling and Simulation, May 16-18, pp. 319-323, May 16-18, 2001, Pittsburgh, Pennsylvania, USA.

[C–11] Matthew L. Galetti and Sudhanshu Kumar Semwal, *Lifting and Stretching Surfaces* at the 11th International Conference on Artificial Reality and Telexistence, ICAT2001, pp. 201-4, December 5-7, 2001, Tokyo.

[C–12] Sudhanshu Kumar Semwal, *Wayfinding and Navigation in haptic virtual environments* at the ICME conference Special Session entitled Computers and Systems for Computer Mediated Non Verbal Information Processing, FP1.04, pp. 1-4, August 23-August 25th, 2001, Tokyo.

[C–13] Jonathan Kipling Knight and Sudhanshu Kumar Semwal, *Relativistic Ray Tracer* at the Proceedings of the IASTED International Conference Modeling and Simulation, pp. 319-323, May 16-18, 2001, Pittsburgh, USA.

[C–14] Sudhanshu Kumar Semwal with Drs. S. Morishima, Seikei University, R. Reilly, University College Dublin, and Jun Ohya ATR Media Integration and Research Lab., ICME conference Tutorial T4B entitled Multi-Modal Interfaces for the Physically Able and Disabled, July 30-August 2nd, 2000, NY.

[C–15] SK Semwal and Debra Lee Evans-Kamp, *Virtual Environments for Visually Impaired*, Proceedings of the Second International Conference on Virtual Worlds, Paris, pp. 270-285 (May 2000).

[C–16] Sudhanshu Kumar Semwal, *Complexity Issues in Virtual Environments*, accepted for publication at **the 8th International Conference of Artificial Reality and Tele-Existence (ICAT98)** as **a Distinguished Invited presentation**, pp. 27-32, December 21-23, Tokyo, 1998.

[C–17] Sudhanshu Kumar Semwal and Joakim Johnsson, *Generating Synthetic Models of Mountains, Ocean, and Clouds*, at the **first International Conference on Vision, Graphics, and Image Processing**, New Delhi, India, December 21-23, 1998, pp. 429-434.

[C–18] Sudhanshu Kumar Semwal, Jun Ohya, Iris Firmin, *Estimation of 3D Position in a Virtual Environment*, the **IEEE International Workshop on Robot and Human Communication (IEEE ROMAN98)** held at Takamatsu, Kagawa, Japan, Sept 30-Oct 2, 1998, pp. 619-625.

[C–19] Sudhanshu Kumar Semwal and Mark Freiheit, *Mesh Splitting for the Enclosing Net Algorithm*, Proceedings of **the International Conference on Imaging Science, Systems and Technology**, Las Vegas, Nevada, USA, pp. 375-382, (July 1998).

[C–20] Sudhanshu Kumar Semwal and Jun Ohya, *The Scan&Track Virtual Environment*, Proceedings of **the first International Conference on Virtual Worlds 1998 (VW98)**, Paris, France, July 1st-3rd, 1998. In Lecture Notes in Computer Science, Springer Verlag, LNCS/AI1434, pp. 63-80 (July 1998) .

[C–21] Sudhanshu Kumar Semwal and Jun Ohya, *Geometric-Imprints: A Significant Points Extraction Method for the Scan&Track Virtual Environment*, Proceedings of **the Third International Conference on Automatic Face and Gesture Recognition (F&G98) Conference**, April 14-16, 1998, Nara, Japan, pp./ 480-485, IEEE Computer Society.

[C–22] Sudhanshu Kumar Semwal, Jun Ohya, Iris Firmin, *An Active Space Indexing System for 3D Estimation of Human Postures*, **Computer Vision and Image Media**, Society of Information Processing in Japan, 109-12, pp./ 89-96, Jan 23, 1998.

[C–23] Sudhanshu Kumar Semwal and Hakan Kvarnstrom, *Dual Extent and Directional Safe Zone Techniques for Ray Tracing*, Proceedings of **Graphics Interface Conference**, Kelowna, BC, Canada, pp. 76-97, (21-23 May 1997).

[C–24] Sudhanshu Kumar Semwal and Darin W Griffin, *Synthetic Actor Motion using Fourier Transformation*, **Proceedings of the International Conference on Imaging Science, Systems, and Technology (CISST 1997)**, pp. 478-484, Las Vegas, Nevada (June 30-July 3, 1997).

[C–25] Sudhanshu Kumar Semwal and Bernadatte Julia Lee, *Modeling Hair using L-systems*, **Proceedings of the IASTED International Conference on Applied Modeling and Simulation**, pp. 115-118, Banff, Canada, (July 27-August 1, 1997).

[C–26] Sudhanshu Kumar Semwal, Ron Hightower, and Sharon Stansfield, *Closed Form and Geometric Algorithms for Real-Time Control of an Avatar*, **IEEE Virtual Reality Annual International Symposium (VRAIS)**, pp. 177-184, Santa Clara, CA, (March 1996).

[C–27] Sudhanshu Kumar Semwal, *A Proposal to Apply Virtual Reality for the Mobility Training of the Blind*, **IEEE Communications Conference**, Ocho Rios, Jamaica, pp. 24-29, (August 1995).

[C–28] Douglas E. Dow, Kazuhiko Inada, and Sudhanshu Kumar Semwal, *Synthetic Actor Algorithms for Game and VR Applications*, **The NICCOGRAPH Conference**, Tokyo, Japan, pp. 101-111 (1994).

[C–29] Douglas E. Dow and Sudhanshu Kumar Semwal, *Fast Techniques for Mixing and Control of Motion Units for Human Animation*, **Proceedings of Pacific Graphics**, 1994, Beijing, China, pp. 229-242.

[C–30] Douglas E. Dow and Sudhanshu Kumar Semwal, *A Framework for Modeling the Human Muscle and Bone Shapes*, **New Advances in Computer Aided Design & Computer Graphics**, vol. 1, pp. 110-115, (1993). Proceedings of **The Third International Conference on CAD and Computer Graphics**, Beijing, China. International Academic Publishers. Zesheng Tang (Editor) August (1993).

[C–31] Douglas E. Dow and Sudhanshu Kumar Semwal, *Modeling Complex Human Shape using Flexible Object Oriented Methodology*, **The NICCOGRAPH Conference**, Tokyo, Japan, pp. 35-43 (1992).

[C–32] Douglas E. Dow and Sudhanshu Kumar Semwal, *Human Shape Primitive: Generalized Cylinder*, **IEICE Conference**, Tokyo, Japan, pp. 150-151 (1992).

[C–33] Douglas E. Dow and Sudhanshu Kumar Semwal, *Synthetic Human Movement: To Mimic and Deviate*, Proceedings of **The 45th Annual Convention of Information Processing Society**, Tokyo, Japan, Vol.2, pp. 351-352 (1992).

[C–34] Sudhanshu Kumar Semwal, *Ray Tracing using the Slicing Extent Technique*, **IEICE Spring Conference**, Tokyo, Japan, pp. 7-367 (1992).

[C–35] Douglas E. Dow and Sudhanshu Kumar Semwal, *Muscle Deformation using Generalized Cylinders*, **IEICE Spring Conference**, Tokyo, Japan, pp. 7-388 (1992).

[C–36] Lisa Nafziger and Sudhanshu Kumar Semwal, *Modeling Diffraction Grating Surfaces Using Ray Tracing* Proceedings of **The 5th International Conference on Engineering Computer Graphics and Descriptive Geometry**, Melbourne, Australia, pp. 17-21, August (1992).

[C–37] Paul Swann and Sudhanshu Kumar Semwal, *Flow Visualization of Point Data*, **IEEE Visualization 91 Conference**, San Diego, California, pp. 25-32. IEEE Computer Society. Gregory M. Nielson and Larry Rosenblum (Editors) November (1991).

[C–38] David Dauenhauer and Sudhanshu Kumar Semwal, *Approximate Ray Tracing*, **Graphics Interface** , Halifax, Nova Scotia, Canada, pp. 75-82. Canadian Information Processing Society, ACM SIGGRAPH, and Canadian Man-Computer Communication Society (1990).

[C–39] Darin Buchanan and Sudhanshu Kumar Semwal, *A Front to Back Technique for Volume Rendering* , **Computer Graphics International**, Computer Graphics Around the World, Singapore, pp. 149-174. Springer-Verlag (1990).

[C–40] Sudhanshu Kumar Semwal, *Solving General Intersection Problem, Sorting and 3D Containment Problem*, **Eighth Annual International Phoenix Conference on Computers and Communications**, Scottsdale, AZ, pp. 422-426. IEEE Computer Society Press, March (1989).

[C–41] Ron Broome and Sudhanshu Kumar Semwal, *The UCCS Visual Programming Interpreter*, **CASE 89: The International Workshop on Computer-Aided Software Engineering**, Imperial College, London. British Computer Society and the IEEE Computer Society (1989).

[C–42] Josef E. Pfauntsch and Sudhanshu Kumar Semwal, *Animated Speech Production*, **Symposium on Computer Graphics Education**, Poughkeepsie, NY, pp. 15-23, November 4-5 (1988).

ABSTRACTS, AND BOOK CONTRIBUTIONS

[B–1] Sudhanshu Kumar Semwal, *The Slicing Extent Technique for Fast Ray Tracing*, Dissertation Abstract published in *Computer Graphics*, Vol. 2, No. 2, pp. 88-89, April (1988).

[B–2] Sudhanshu K. Semwal, with Scot Tharne Refsland et. al. *Virtual Great Barrier Reef: A Theoretical Approach Towards and Evolving Interactive VR Environment using a Distributed DOME and CAVE System*, A book on Virtual Worlds based upon distinguished papers awarded in VW98 conference, edited by Jean-Claude Heudin, and Yaneer Bar Yam entitled *Virtual Worlds Synthetic Universe, Digital Life, and Complexity* published by Perseus Books, contains the Scan&Track virtual environment being developed at my University, pp. 161-164, ISBN 0-7382-0050-6 (1999).

[B–3] Sudhanshu K. Semwal, L. Ted Ryder, Keith Seyler, *Color and Texture Correlate data*, pp. 1-6 in **Visual Cues** by Peter R. Keller and Mary M. Keller, IEEE Computer Society Press. (1993).

TEACHING

When I joined UCCS there were two graphics courses: Introduction to Graphics and Advanced Computer Graphics. Both these courses have been completely revamped. In addition, I introduced seven new courses: 3D Games and Digital Content Creation; Wearable Computing and Complex Systems Theory; Computer Graphics Animation and Visualization; Geometric Modeling; Computational geometry; Virtual Reality and Human Computer Interaction; and Designing Efficient Algorithms on Parallel Systems.

I have taught the following courses — 3D Games and Digital Content Creation (Spring 2004); Wearable Computing and Complex Systems (Spring 2003), Introduction to Computer Graphics (Fall 87, 88, 89, 92, 94, 96, 97, 98, 99, 2000, 2001, 2003, 2004, and Spring 98, 2003), Advanced Computer Graphics (Spring 88, 89, 90, 91, 95, 97, 99, 2002, 2004), Computer Graphics Animation and Visualization (Fall 92, 93, 94, 96, 98, 2001, Spring 2000, Fall 2003), Geometric Modeling (Fall 90), Computational Geometry (Fall 88, Spring 93, Summer 94, Fall 2000, Summer 2002), Virtual Reality and Human Computer Interaction (Spring 93, 94, 95, 96, 98, 2001 Fall 99), Designing Efficient Algorithms on Parallel Systems (Summer 88, 89), Design and Analysis of Algorithms (Spring 88, 89, 90, 91, 96, 97, 98, 99, Fall 90), Theory of Automaton (Fall 87), Data Structures with Java (Spring 2000), Introduction to Java (Fall 2000), and Data Structures and Algorithms II (Fall 93).
I have taught on the average four courses per academic year.
My student evaluations have been mostly between A^- and A^+ for the past several years. Most recent instructor's ratings: A (3.69) CS578 (Spring 2004); B^+ (3.33) CS577 (Spring 2004); A^+ (4.0) CS577 (Fall 2003); A^- (3.54) CS480/580 (Fall 2003); A^- (3.52) CS480/580 (Spring 2003); A (3.71) CS579 (Spring 2003); A (3.8) CS575 (Summer 2002); A^+ (4.00) CS581 (Spring 2002). I was on sabbatical in Fall 2002 and served as the Chair of the CS Department in Spring 2002.

GRADUATE STUDENTS ADVISING

I have supervised 45 M.S. students and one Ph.D.[1] student as their major thesis-advisor. I am currently the major advisor for 8 M.S. students and 3 Ph.D. students.

In addition, I have also served as a Member of the M.S. committee for more than 50 graduate students.

PROFESSIONAL ACTIVITIES

NSF HCI Panel Spring 2003.

Attended MMVR 2004 (Newport Beach,CA); ISWC 2002 (University of Washington), ISWC 2003 (Yoroktown Heights, NY).

NISSC PI-Workshop, Research lecture presentation, Haptic-Signatures for Cyberworld, Nov 2003.

Security Poster Session, Feb 2003. Poster Sessions sponsored by the Office of Sponsored Research (Dr. David Schmidt), Fall 2003.

ICAT2003 Program Committee Editor for the NonVerbal research book publication.

Session Chair, IASTED EMS, Nov. 2004.

Reviewer, WSCG 2005 (Winter School of Computer Graphics Conference).

Presented a paper in the non-verbal information processing meeting held along at the ICME conference August 23-August 25, Tokyo (2001).

International Program Committee Member, 2nd International Virtual Worlds 2000 Conference, to be held in Paris, May 2000.

Presented a paper in the non-verbal information processing meeting held along with the ICME conference July 31-Aug 2, NY (2000)
Presented a paper in the Very Low Bit Video Rate (VLBV) conference, in Kyoto, Japan (October 1999).

International Program Committee Member, International Conference on Artificial Reality and Tele-Existence (ICAT99, ICAT2000, ICAT2001, ICAT2002, ICAT2003, ICAT 2004).

Presented a paper at the Very Low Bit Video (VLBV) conference, in Kyoto, Japan (October 1999).

Distinguished invited lecture on *Complexity Issues in Virtual Environments*, at the International Conference on Artificial Reality and Tele-Existence (ICAT98), Tokyo December 21-23, 1998.

Attending 2nd Consortium Meeting of *Non-Verbal Information Processing* Group, to be held at Seika-Cho, Kyoto (October 1999). I am one of the consortium members. The 1st Consortium Meeting of this group was held in Colorado Springs in January 30-31, 1999 (see below).

Organizing the first Consortium Meeting on *Non-Verbal Information Processing* at University of Colorado, Colorado Springs, January 30-31st, 1999.

[1] The Ph.D. program in my department started in 1997-98.