Yang Xiaosong

Senior Lecturer

National Centre for Computer Animation
The Media School
Bournemouth University

Weymouth House Talbot Campus
Fern Barrow Poole Dorset BH12 5BB
Tel: +44(0))1202 961884
Fax: +44(0) 1202 965530
http://nccastaff.bournemouth.ac.uk/xyang/
E-mail: xyang@bournemouth.ac.uk

Dr. Yang is currently a Senior Lecturer at the National Centre for Computer Animation, Bournemouth University. His research focuses on a number of topics relating to character animation, geometrical modeling, volume rendering, physically-based deformation, motion capture and synthesis, cloth simulation, virtual reality, surgery simulation, computer aided design. He has produced more than 35 peer reviewed publications that include international journal articles, conference papers, and book chapters. He recently has secured two research grants, one from the Higher Education Innovation Fund, the other from Bournemouth Hospital. Dr. Yang has supervised seven Ph.D students, two of them have successfully completed their degrees. He was invited to join the International Programme Committees for a number of international conferences. He has given several invited talks and keynote presentations internationally.

Dr. Yang received his bachelor (1993) and master degree (1996) in Computer Science from Zhejiang University (P. R. China), Ph.D.(2000) in Computing Mechanics from Dalian University of Technology (P. R. China), two years' PostDoc (2000-2002) in Tsinghua University on Scientific Visualization, one year (2001-2002) research assistant at the "Virtual Reality, Visualization and Imaging Research Centre" of Chinese University of Hong Kong. Since 2003, he joined NCCA, continue his work on Computer Animation, mainly responsible for the AHRC supported project “Fast Animator Controlled Synthetic Creature Skin Deformations” and GWR project “Retargeting Animated Human Characters”. His work on muscle modeling and deformation has aroused lots of attentions and has been widely reported by New Scientist, Wiedza I Zycie and MIT Technic Review etc.

Research Work:

2003.3 - Now National Centre for Computer Animation,
Bournemouth University, United Kingdom

Research Topic: Computer Animation, physical based deformation

Project:

1. Fast Animator Controlled Synthetic Creature Skin Deformations (Funded by the **British Arts and Humanities Research Council**)
2. Retargeting Animated Human Characters (Funded by **Great Western Research**)

2001.6 - 2002.6 **The Virtual Reality, Visualization and Imaging Research Centr**e

Department of Computer Science and Engineering, The Chinese University of HongKong

Research Topic: Virtual Endoscopy, Visualization of Scientific Computing (Research Assistant)

Project: Augmented Reality System for Endoscopic Surgery Simulation and Operation
(Funded by The National Natural Science Foundation of China and RGC of Hong Kong)

2000.6 -2002.10 **Visualization and Computer Graphics Lab**.

Department of Computer Science and Technology, Tsinghua University, P. R. China

Research Topic: Virtual Endoscopy, Visualization of Scientific Computing (PostDoc)

Project: Augmented Reality System for Endoscopic Surgery Simulation and Operation

1996.3-2000.6 **National Key Laboratory of Structural Analysis of Industrial Equipment**,

Dalian University of Technology, P.R.China

Research Topic: Scientific Visualization, CAD, distributed computing

Project: (1) 3D geologic modeling techniques for rimose oil field with latent fault,

cooperated with Liaohe Oil Field in the Northeast of China;

(2) JIFEX95 developed on X-WINDOW on SGI Indigo Entry4000, Function focuses on Finite element analyze post-processing - Contour Line, Slice, Animation, Volume Rendering, Iso-surface...

(3) Design and implementation of some optimization algorithms using a distributed computing model on 5 SGI machine group, cooperated with Dept. of Mathematics

1994.11-1996.1 **CAD & CG National Key Lab, Zhejiang University, P.R.China**

Research Topic: Intelligent Computer Graphics

Project: RIS95 developed on X-WINDOW on Sun Workstation, Function focus on

Real-time Shading method combined with basic knowledge of painters.

1992.2-1994.11 **CAD & CG National Key Lab, Zhejiang University, P.R.China**

Research Topic: Computer Graphics, System Development

Project: GKS-3D graphical Software Package for Ada and C developed on

X-WINDOW on Sun Workstation, Function focus on Implementation of some fundamental Graphics Algorithm and establishment of a kernel system.

1991.2-1992.2 **Neural Network Lab, Zhejiang University, P.R.China**

Research Topic: Kohonen Neural Network, Image Recognition

Teaching Experience

- "Principles and Practices of Programming", Bournemouth Univesity, 2011.
- "Visualization in Scientific Computing", Tsinghua University, 2001.
- "Programming Skills in C Language", Motorola company, 2000.

Education

1996. 3 - 2000.6	Department of Engineering Mechanics, Dalian University of Technology, Dalian, P.R.C. Major: Visualization of Scientific Computing (Ph.D. Degree)
1993. 9 - 1996.1	Department of Computer Science and Engineering, Zhejiang University Hangzhou, Zhejiang, P.R.C. Major: Intelligence Computer Graphics, CAD (Master Degree)
1989. 9 - 1993.8	Department of Computer Science and Engineering, Zhejiang University Hangzhou, Zhejiang, P.R.C. Major: Computer Graphics (Bachelor Degree, 1993,7, GPA 88.75)

Publications

- Yu, H.C., Lee, T.Y., Yeh, I.C., Yang, X.S., Li, W.X., Zhang, J.J., 2011. RBF-based Reparameterization Method for Constrained Texture Mapping. IEEE Transactions on Visualization and Computer Graphics, 06/2011; DOI: 10.1109/TVCG.2011.117
- You., L.H., Chang, J., Yang, X.S., Zhang, J.J., 2011. Solid modelling based on sixth order partial differential equations. Computer-Aided Design, 43(6), 720-729.
- Pan, J.J., Chang, J., Yang, X.S., Zhang, J.J., Qureshi, T., Howell, R., Hickish, T., 2011. Graphic and haptic simulation system for virtual laparoscopic rectum surgery. In: The International Journal of Medical Robotics and Computer Assisted Surgery, 11 May 2011.
- Liu, F.D., Yang, X.S., Zhang, J.J., 2011, Adaptive Character Motion Synthesis By Qualitative Approach, In:CGVCVIP: The IADIS Computer Graphics, Visualization, Computer Vision and Image Processing, 24 - 26 July 2011, Rome, Italy
- Chang, J., Yang, X.S., Pan, J.J., Li, W., Zhang, J. J., 2010. A fast hybrid computation model for rectum deformation. The Visual Computer, 27(2), 97-107
- You, L.H., Yang, X.S., You, X. Y., Jin, X., Zhang, J. J., 2010. Shape manipulation using physically based wire deformations. Computer Animation and Virtual Worlds. 21(3-4), 297-309
- Chang, J., Yang, X.S., Pan, J.J., Li, W. Zhang, J. J., 2010. Beads-on-String Model for Virtual Rectum Surgery Simulation. In: 3D Anatomic Human Summer School 2010, 23-24 May 2010, Chania, Crete, Greece.
- Yang, X.S., Southern, R., Zhang, J.J., 2009. Fast simulation of skin sliding. Computer Animation and Virtual Worlds, 20 (2-3), 333-342.
- Pan, J.J., Yang, X.S., Xie, X., Willis, P., Zhang. J.J., 2009. Automatic rigging for animation characters with 3D silhouette. Computer Animation and Virtual Worlds, 20(2-3), 121-131.
- Chang, J., Yang, X.S., Zhang. J.J., 2009. Hyper-twist. Digital Creativity, 20 (1 & 2), 47 - 58.
- Chang, J., Yang, X.S., Shepherd, D.X., Zhang. J.J., 2009. Defoxel: A New Tool for Virtual

Aesthetic Shaping. In: Conference on Visualization, Imaging and Image Processing, Cambridge, United Kingdom

- You, L.H., Yang, X.S., Zhang, J.J., 2008. Dynamic skin deformation with characteristic curves. Computer Animation and Virtual Worlds, 19(3-4), 433-444.
- You, L.H., Yang, X.S., Pachulski, M., Zhang, J.J., 2007. Boundary Constrained Swept Surfaces for Modelling and Animation. EUROGRAPHICS 2007 and Computer Graphics Forum, 26(3), 313-322.
- Yang, X.S., Chang, J., Zhang, J.J., 2007. Animating the Human Muscle Structure. Computing in Science & Engineering, 9(5), 39-45.
- Zhang, J.J., Yang, X.S., Zhao, Y.F., 2007. Bar-net driven skinning for character animation. Computer Animation and Virtual Worlds, 18(4-5), 437-446.
- Yang, X.S., Zhang, J.J., 2006. Automatic Muscle Generation for Character Skin Deformation. Computer Animation and Virtual Worlds, Volume 17, 293-303.
- Yang, X.S., Somasekharan, A., Zhang, J.J., 2006. Curve Skeleton Skinning for Human and Creature Characters. Computer Animation and Virtual Worlds, Volume 17(3-4), 281-292.
- Yang, X.S., Zhang, J.J., 2006. Stretch It - Realistic Smooth Skinning. In: 3rd International Conference Computer Graphics, Imaging and Visualization, Sydney, Australia.
- Chang, J., Zhang, J.J., Yang, X.S., 2005. Fast mesh-free deformations. In: 9th international CAD/Graphics Conference, Dec 2005, IEEE.
- Yang, X.S., Zhang, J.J., 2005. Modeling and Animating Hand Wrinkles. Lecture Notes in Computer Science (CGGM'2005), May, 2005, Springer-Verlag.
- Yang, X.S., Zhang, J.J., 2005. Hybrid Skin Deformation for Character Animation. Pacific Graphics 2005, 12-14 Oct, 2005 Macao, China,10-12.
- Yang, X.S., Zhang, J.J., 2005. Realistic Skeleton Driven Skin Deformation. Lecture Notes in Computer Science (TSCG 2005), May, 2005, Springer-Verlag.
- Qun Ren, Xiaosong Yang, Analysis of the Development of Chinese Online Game Industry, Europrix Scholars Conference, European Academy of Digital Media, Nov11-12, 2004.
- X. Yang, Y. Gu, Y. Li, and Z. Guan, "Efficient Volume Rendering Algorithm for Finite Element Model" , Computer-Aided Civil and Infrastructure Engineering, 18 (2003), 121-131
- Yang Xiaosong, Pheng Ann Heng, Tang Zesheng, Constrained Tetrahedral Mesh Generation of Human Organs on Segmented Volume, International Conference on Diagnostic Imaging and Analysis (ICDIA 2002)
- Yang Xiaosong, Shen Hao, Tang Zesheng, Constrained Tetrahedral Mesh Generation of Human Organs on Segmented Volume, ChinaGraphics2002
- Xiaosong Yang, Pheng Ann Heng, Zesheng Tang, Long Tang, Virtual Arthroscopic Knee Surgery Training System, Proceedings of The fourth China-Japan-Korea Joint Symposium on Medical Informatics(CJKMI2002), Page 175-179
- Yang Xiaosong, Gu Yuanxian, Li Yunpeng, Guan Zhenqun, "Cutting Algorithm in the Volume Rendering of FEM", Journal of Image and Graphics, 2002, 7(1), 55-62
- Yang Xiaosong, Li Yunpeng, Gu Yuanxian, "Fast Volume Rendering algorithm for FEM", Journal of Computer-Aided Design & Computer Graphics. April 2001, pp 348-352

- Cao Yuxiu, Yang Xiaosong, Tang Long and Tang Zesheng, Improved Algorithms For B-Spline Curve Approximation and Fairing,International Conference on Computer Aided Industrial Design 2001.
- Yang Xiaosong, Li Yunpeng, Gu Yuanxian, "Scan-Buffer based Direct Volume Rendering Method for 3D Irregular Data meshes", Journal of Dalian Univ. of Technology. 2000, March, Vol40, pp198-202.
- Yang Xiaosong, Gu Yuanxian, "Slicing based fast Volume Rendering algorithm for FEM meshes", The National young academic conference on research and application development of Computational mechanics. August 1999.
- Li Yunpeng, Yang Xiaosong, "Cross-platform Finite Element Graphics Software-GRAFEA", Northeast Conference on the research of Mechanics, 1999, August
- Yang Xiaosong, Gu Yuanxian, Li Yunpeng, "Arbitrary Plane Cut and Contour Plotting of 3D Solid Finite Element Model", Journal of Image and Graphics, 1999, July, Vol4, pp574-578.
- Gu Yuanxian, Yuan Cangzhou, Yang Xiaosong, "Advanced Visual Techniques for FEM computing-Scan-buffer based direct volume rendering for 3D irregular meshes ", Proc. WCCM-4, BuenosAires Argentina, 1998, Vol. 3, 913
- Yang Xiaosong, Yuan Huasong, Pan Yunhe, "The Knowledge-based Generation of Transparency in CSG shading", NCYCS'96, pp527-531.

Qualifications & Computer Skills

- Over 20 years experience in developing software algorithms and systems for Computer Graphics and Computer Animation research
- Over 20 years experiences in software development, systems engineering, and project management
- Programming Language: C/C++, Maya API, Maya Mel Script, Python, Java, Perl, CGI, OpenGL, GKS, VRML, Pascal, Fortran

References available upon request.