
Su Cai

Mailbox 65

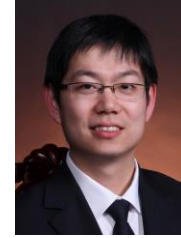
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RESEARCH INTERESTS

Virtual Reality/Augmented Reality in Education

STEM Education

3D Virtual Learning Environment

APPOINTMENT

2012-present Vice Director, Joint Laboratory for Mobile Learning, Ministry of Education-China
Mobile Communications Corporation, China.

2008-present Instructor, Institute of Modern Educational Technology, Faculty of Education,
Beijing Normal University, Beijing, China.

EDUCATION

2015-2016 Visiting Scholar, Teachers College, Columbia University.

2004-2008 Ph.D, School of Computer Science & Engineering, Beihang University. Team
leader of the DM group at State Key Laboratory of Virtual Reality Technology
and System.

2002-2004 M.S., School of Computer Science & Engineering, Beihang University

1998-2002 B.S., School of Computer Science & Engineering, Beihang University

SELECTED PUBLICATIONS

Books

Cai S. (2013). 3D Internet Development and Application. Higher Education Press. ISBN:
978-7-04-035137-8. (in Chinese)

Journal Articles

Chiang, F. K., Zhu, G., Wang, Q., Cui, Z., **Cai, S.**, & Yu, S. (2015). Research and trends in mobile learning from 1976 to 2013: A content analysis of patents in selected databases. *British Journal of Educational Technology*. DOI: <http://dx.doi.org/10.1111/bjet.12311>

Cai, S., Wang, X., & Chiang, F.-K. (2014). A Case Study of Augmented Reality Simulation System Application in a Chemistry Course. *Computers in Human Behavior*. 37(8), 31-40. DOI: <http://dx.doi.org/10.1016/j.chb.2014.04.018>.

Cai, S., Chiang, F.-K., & Wang, X. (2013). Using the augmented reality 3D technique for a convex imaging experiment in a physics course. *International Journal of Engineering Education*, 29(4), 856-865.

Cai, S., Song, Q., & Yao Y. C. (2011). Review on Augmented Reality Learning Environment. *China Educational Technology*, 8,114-119(in Chinese)

Zhao, X., & **Cai, S***. (2011). 'Many to one' mode of CSCL and further discussion. *International Journal of Continuing Engineering Education and Life-Long Learning*, 21(1), 42-54.

Cai, S., & Shen, X. K. (2011). Octree-based robust watermarking for 3D model. *Journal of Multimedia*, 6(1), 83-90.

Cai S., Yu S. Q. (2010). Sloodle:A Case for 3D Virtual Learning Environment. *Open Education Research*. 16(2), 98-104. (in Chinese)

Cai S., Huang R. H. (2009). Service is a new requirement for digital campus. *IT Education in Primary and Secondary Schools*, 11, 59-60. (in Chinese)

Qi, Y., Yang, S., **Cai, S.**, Hou, F., Shen, X. K., & Zhao, Q. P. (2009). A method of 3D modeling and codec. *Science in China Series F: Information Sciences*, 52(5), 758-769.

Qi Y., & **Cai S.** (2008). Aviation Museum: a Case for China Digital Science and Technology. *Computer Education*. 23:4-9. (in Chinese)

Cai S., & Fu D. P. (2008). Role of IT Development in Promotion to Build CRD. Advice and Suggestions Anthology of Testing Training Doctoral Students and Postdoctorals in Capital Universities. China Financial & Economic Publishing House.78-83. (in Chinese)

Qi Y., Shu J., Shen X. K., **Cai S.** (2008). Octree-based blind watermarking on 3D meshes. *Journal of Beijing University of Aeronautics and Astronautics*, 34(3):331-335. (in Chinese)

Qi, Y., Yang, S., & **Cai, S.** (2008). Method for reconstruction and representation 3D models in digital museum. *Journal of Computational Information Systems*, 4(4), 1721-1726

Cai, S., Jin, P., Qi, Y., & Shen, X. (2006). Protected-3DMPS: Remote-rendering based 3D model publishing system in digital museum. *Journal of Computational Information Systems*, 2(1), 277-283.

Cai S., Zhao Q. P. (2006) A Review on 3D Mesh Compression. *Computer Science*, 33(5), 1-4. (in Chinese)

Shen X. K., Zhao X. W., Qi Y., **Cai S.** (2006). Simplification of unclosed mesh models with geometry and property boundary preservation. *Journal of Beijing University of Aeronautics and Astronautics*, 32(12), 1485-1489. (in Chinese)

Cai S., Qi Y., Shen X. K. (2003). Algorithm for Robust Blind Image Watermark. *Journal of Beijing University of Aeronautics and Astronautics*, 29(10), 905-908. (in Chinese).

Conferences Papers

Kan Y.Y., **Cai S. ***, Xie Z.R. (2015). Application and Practice of Maker Teaching Method Joint with Task-driven Method in Interactive Media Technology Courses. *The 19th Global Chinese Conference on Computers in Education* (pp.725-732). Taiwan.

Zhu G.X., **Cai S. ***, Ma Y.Y., Liu E.R. (2015). A series of Leap Motion-based Matching Games for Enhancing the Fine Motor Skills of Children with Autism. *IEEE 15th International Conference on Advanced Learning Technologies*. (pp.430-431). Taiwan.

Wang P.W., Ouyang S.X., Zhang X., Zu R.J., **Cai S. *** (2014). A Study on Campus Cultural Learning and Navigation System Using Mobile Augmented Reality and Location Based Services. *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp.2011-2016). New Orleans, USA.

Zhu G.X., **Cai S.***, & Kan Y.Y. (2014). Color-Ball: A Gesture-Based Vocabulary Game to Promote Children's Study. In *3rd International STEM (Science, Technology, Engineering and Mathematics) in Education Conference*. Vancouver, Canada.

Shi P.F., **Cai S.***, Yuan Q.Q., & Wang P.W. (2014). Campus Service Application based on Augmented Reality and Location Awareness. In *3rd International STEM (Science, Technology, Engineering and Mathematics) in Education Conference*. Vancouver, Canada.

He J.J., Ren J. L., Zhu G.X., **Cai S.***, Chen G. (2014). Mobile-Based AR Application Helps to Promote EFL Children's Vocabulary Study. *The 14th IEEE International Conference on Advanced Learning Technologies* (pp. 431-433). Athens, Greece.

Wang Q., Zhu G.X., Cui Z.F., Chiang F.K., **Cai S***. (2014). A Case Study of the Effects of AR-based Convex Imaging on Middle School Students' Learning. In *18th Global Chinese Conference on Computers in Education* (pp.111-118). Shanghai.

Pei, L. S., **Cai, S.***, & Shi, P. F. (2013). Mobile Campus Touring System based on AR and GPS: a Case Study of Campus Cultural Activity. In *Proceedings of the 21st International Conference on Computers in Education* (pp. 518-526). Indonesia. Nominees of Best Paper Awards. <http://www.apsce.net/icce/icce2013/best-paper-awards/>

Wang, X., **Cai, S.***, & Chiang, F.-K. (2013). Using Inquiry-based Augmented Reality Tool to Explore Chemistry Micro Worlds. In *Proceedings of the 21st International Conference on Computers in Education* (pp. 151-156). Indonesia

Sun, Y. C., Lin, C. L., Li, Q. H., **Cai, S.**, & Chiang, F.-K. (2013). "TESTINGRESISTANCE" Experiment Courseware based on FlashAR. In *11th International Conference for Media in Education* (pp. 81). Japan.

Zheng, J., **Cai, S.** & Chiang, F.-K. (2013). Project-based Learning and Problem-based Learning in the Multimedia Design Course for Improving Critical Thinking Performance. In T. Bastiaens & G. Marks (Eds.), *Proceedings of World Conference on E-Learning in Corporate, Government, Healthcare, and Higher Education* (pp. 1020-1024). Chesapeake, VA: AACE.

Cai, S., Chiang, F.-K., & Wang, X. (2012). Using the Augmented Reality for Convex Imaging Experiment. In *2nd International STEM (Science, Technology, Engineering and Mathematics) in Education Conference* (pp. 265-272). (Best Paper Award, selected to journals)

Wang, J. G., & **Cai, S.** (2012). An Explore Study on the Application of Somatosensory Technique to Virtual Experiment. In *2nd International STEM (Science, Technology, Engineering and Mathematics) in Education Conference* (pp. 340-343).

Cai, S., Wang, X., Gao, M., & Yu, S. (2012). Simulation teaching in 3D augmented reality environment. In *1st IIAI International Conference on Advanced Applied Informatics, IIAIAI 2012* (pp. 83-88). Fukuoka, Japan: IEEE Computer Society.

Cai, S., Song, Q., Wu, J., & Sun, Y. (2012). Virtual & Reality Combined Learning Environment and Cases. In *the 16th Global Chinese Conference on Computers in Education* (pp. 361-364). Taiwan. (in Chinese)

Cai, S., & Song, Q. (2012). AR-based remote video learning system. In *17th IEEE International Conference on Wireless, Mobile and Ubiquitous Technology in Education* (pp. 322-324). Takamatsu, Kagawa, Japan: IEEE Computer Society.

Cai, S., & Yao, Y. C. (2011). I3DVLE: A case for 3D interactive virtual learning environment. In *2nd Annual Conference on Electrical and Control Engineering* (pp. 6607-6611). Yichang, China: IEEE Computer Society.

Cai, S., Liu, Q., & Li, L. Y. (2010). A case for web-based interactive 3D game using motion capture data. In *5th International Conference on E-learning and Games* (Vol. 6249 LNCS, pp. 541-549). Changchun, China: Springer Verlag.

Cai, S., & Shen, X. K. (2010). OTP-W: Octree partition-based 3D mesh watermarking. In *2nd International Workshop on Education Technology and Computer Science, ETCS 2010* (Vol. 3, pp. 19-22). Wuhan, China: IEEE Computer Society.

Cai, S., & Yu, S. (2009). Post-forecast OT: A novel method of 3D model compression. In *2009 International Conference on Computational Intelligence and Software Engineering* (pp. 1-4). Wuhan, China: IEEE Computer Society.

Cai, S., Qi, Y., & Shen, X. K. (2007). 3D data codec and transmission over the Internet. In *12th International Conference on 3D Web Technology* (Vol. 2007, pp. 53-56). Perugia, Italy: ACM.

Qi, Y., **Cai, S.**, & Yang, S. (2007). 3D modeling, codec and protection in digital museum. In *2nd Workshop on Digital Media and its Application in Museum and Heritage* (pp. 231-236). Chongqing, China: IEEE. Computer Society.

Shu, J., Qi, Y., **Cai, S.**, & Shen, X. K. (2007). A novel blind robust digital watermarking on 3D meshes. In *2nd Workshop on Digital Media and its Application in Museum and Heritage* (pp. 25-30). Chongqing, China: IEEE. Computer Society.

Cai, S., Jin, P., Wang, P. R., Qi, Y., & Shen, X. K. (2005). A Motion Capture Based Seamless Human Animation Over the Internet. In *6th International Conference on Computer-Aided Industrial Design & Conceptual Design* (pp. 679-685). Delft, Netherlands.

Cai S., Qi Y., Shen X. K. (2002). 3DIDSB: A 3D Interactive Dynamic Scene Building Designer. *Proceedings of the 11th National Conference on Multimedia Technology*. (247-252). Dongguan, China. (in Chinese).

PATENTS

Cai Su, Yu Shengquan, Gao Mengnan, Wang Wei, Wu Juan. A production method of convex imaging virtual experimental. Patent No: ZL201110385549.3. Authorization Day: 2013.9.25

Cai Su, Yu Shengquan, Wu Juan, Gao Mengnan. A production method of virtual-reality-combined interactive book. Application No: CN201010535155.7, Publication No: CN101976463A

Cai Su, Yu Shengquan. A method of 3D texture compression based on quadtree. Patent No: ZL200810240404.2. Authorization Day: 2011.01.19

Zhao Qiping, Qi Yue, Shen Xukun, **Cai Su**. A method of 3D model compression based on octree. Patent No: 200610114098.9. Authorization Day: 2010.05.12

SELECTED RESEARCH PROJECTS

2013.1-2015.12, Principal Investigator, "Research on Interactive AR Teaching Environment", by Beijing Higher Education Young Elite Teacher Project (Grant No:YETP0230).

2012.4-2015.4, Principal Investigator, the project of "Research on Simulation and Interaction in Augmented Reality-based Learning Environment", by the Fundamental Research Funds for the Central Universities (Grant No:2012LYB14).

2012.4-2013.6, Principal Investigator, "Research on Key Technology and Application of Augmented Reality-based Learning Environment", by Beijing Natural Science Foundation (Grant No:4123099).

2012.4-2014.4, Principal Investigator, "Research on Modeling Technology in Virtual-Reality-Combined Learning Environment", by Open Funding in State Key Laboratory of Virtual Reality Technology and System (Grant No: BUAA-VR-12KF-12).

2010-2011, Principal Investigator, "3D Virtual Learning Environment", by Beihang University.

2010.9-2012.1, Principal Investigator, "Construction of Information Technology Course Resources", by General Administration of Sport of China.

2011.1-2014.1, Co-Principal Investigator, with Professor Yu Shengquan. "Ubiquitous learning resources organization model and its key technologies", by National Natural Science Foundation of China (Grant No: 61073100).

2009-2012, Co-Principal Investigator, with Professor Yu Shengquan. "4A(Anyone Anything Anywhere Anytime) Learning Platform", by Higher Education Press.

2009-2010, Co-Principal Investigator, with Professor He Kekang. "The popularization proposal to utilize the education technology to improve the teaching quality of rural primary school", by THE FORD FOUNDATION.

SERVICE & CONSULTING

2014, EC member of the International Conference of Science, Technology, Engineering and Mathematics in Education ([STEM2014](#))

2014, PC Vice Chair of Digital Classroom, Mobile and Ubiquitous Learning of Global Chinese Conference on Computers in Education ([GCCCE 2014](#))

2012, Organising Committee Co-Chair of the International Conference of Science, Technology, Engineering and Mathematics in Education ([STEM2012](#))

2012, PC member of IIAI International Conference on Learning Technologies and Learning Environments ([LTLE2012](#))

2011, Organising Committee Chair of 10th World Conference on Mobile and Contextual Learning ([mLearn2011](#))

2010.11-2011.12, as the secretary in National Education Structure Reform Leading Group Office.

2007.11-2008.4, as the Assistant Director of Beijing Shijingshan District Information Office, making regional information construction plan and research.

2005.4-2006.4, Joined the CCF(China Computer Federation) Young Computer Science & Engineers Forum for Graduate Students and elected to be the executive commissioner in 2005. Awarded Outstanding Contributions Executive Commissioner in April, 2006.

HONORS & AWARDS

Young Talent Plan of Beijing Colleges and Universities, 2013

Excellent instructor, BNU, 2012.

Outstanding Graduate Teaching Award, BNU, 2010~2011 Academic year

First prize, Twelfth Young Teacher Teaching Basic Skills Competition, BNU, 2010.12

"Virtual-Reality-Combined Dynamic Model Display System", National Second Simulation Software Contest Prize, 2010

Outstanding Graduate Teaching Award, BNU, 2009~2010 Academic year

HP Special Outstanding Award (only 12 people in China), 2007.10

Outstanding Contributions Executive Commissioner Award of CCF(China Computer Federation), 2006.4