

CURRICULUM VITAE

HUANTIAN CAO

Department of Fashion and Apparel Studies
201 Alison Hall West
University of Delaware
Newark, DE 19716

Email: hcao@udel.edu; Phone: (302) 831-6124; Fax: (302) 831-6081

EDUCATION

- Dec. 2000 Ph.D., University of Georgia, Athens, GA
Major: Textile Sciences
Dissertation: Decolorization of Textile Dyes by White Rot Fungi
- May 2002 M.S., University of Georgia, Athens, GA
Major: Computer Science
Thesis: An Automated System to Calculate Coefficients of Generating Functions
- Mar. 1997 M.S., China Textile University (now Donghua University), China
Major: Dyeing and Finishing Engineering
Thesis: Research on Synthesis and Preparation of Superabsorbent
- July 1994 B.S., China Textile University (now Donghua University), China
Major: Dyeing and Finishing Engineering

EMPLOYMENT

- Sept. 2008- ASSOCIATE PROFESSOR
Department of Fashion and Apparel Studies
University of Delaware
- July 2008-Aug. 2008 ASSOCIATE PROFESSOR
Department of Design, Housing and Merchandising
Oklahoma State University
- Aug. 2003-June 2008 ASSISTANT PROFESSOR
Department of Design, Housing and Merchandising
Oklahoma State University
- June 2002-July 2003 RESEARCH SCIENTIST
Department of Design, Housing and Merchandising
Oklahoma State University

TEACHING EXPERIENCES

University of Delaware

Instructor, FASH 215, Fundamentals of Textiles I (5 semesters)
Instructor, FASH 220, Fundamentals of Textiles II (4 semesters)
Instructor, FASH 689, Apparel Supply Chains and Social Responsibility (online course, 2 semesters)

Oklahoma State University

Instructor, DHM 4993, Textiles, Apparel, Interiors and Related Products in the International Economy (2 semesters)
Instructor, DHM 4573, Environmental Issues for Designers and Merchandisers (4 semesters)
Instructor, DHM 5001, Orientation to Graduate Studies in DHM (4 semesters)
Instructor, DHM 2573, Textiles (10 semesters)
Lab Instructor, DHM 2573, Textiles (4 semesters)

University of Georgia

Lab Instructor, CSCI 1100, Introduction to Personal Computing (3 semesters)

RESEARCH INTERESTS

Protective Textile and Clothing

- Smart textiles and clothing
- Protective clothing for agricultural, industrial, homeland security, and military applications
- Textiles with protective functions

Sustainable Design and Development in Textiles and Related Area

- Course development: Sustainability issues for designers and merchandisers
- Sustainable apparel, interior and housing design

REFEREED JOURNAL PUBLICATIONS

Nam, J., Branson, D. H., Ashdown, S., **Cao, H.**, & Carnrite, E., (under review). Analysis of cross sectional ease values and fit of liquid cooled vests from 3D body scan data taken in working positions. Manuscript submitted to *International Journal of Human Ecology*.

Park, H., An, S. K., Peksoz, S., **Cao, H.**, & Branson, D. (under review). An investigation of microclimate change under body armor using thermal manikin and wireless sensors. Manuscript submitted to *AATCC Review*.

Gam, H. J., **Cao, H.**, Bennett, J., Helmkamp, C., Farr, C. (in press). Application of design for disassembly in men's jacket: A study on sustainable apparel design. *International Journal of Clothing Science and Technology*.

Mao, Q., Zhang, L., Huang, D., Wang, D., Huang, Y., Xu, H., **Cao, H.**, & Mao, Z., (in press). Preparation and characterization of flame retardant lamellar Mg(OH)₂ thin films on citric acid modified cotton fabrics. *Surface and Interface Analysis*.

- Jin, B., Swinney, J., **Cao, H.**, Muske, G., Nam, J., & Kang, J. H. (in press). Doing business with China: Curriculum internationalization through an infusion method. *Innovations in Education and Teaching International*.
- Gam, H. J., **Cao, H.**, Farr, C., & Kang, M., (2010). Quest for the eco-apparel market: A study of mothers' willingness to purchase organic cotton clothing for their children. *International Journal of Consumer Studies*, 34(6), 648-656.
- Kan, H., Zhang, L., Xu, H., Mao, Z., & **Cao, H.** (2010). Optimization of conditions for nanocrystal ZnO in-situ growing on SiO₂ coated cotton fabric. *Textile Research Journal*, 80(7), 660-670.
- Gam, H. J., **Cao, H.**, Farr, C., & Heine, L. (2009). C2CAD: A sustainable apparel design and production model. *International Journal of Clothing Science and Technology*, 21(4), 166-179.
- Barnes, B., **Cao, H.**, Drab, T., & Pearson, J. (2009). Design of sustainable relief housing in Ethiopia: An implementation of cradle to cradle design in earthbag construction. *American Journal of Environmental Sciences*, 5(2), 137-144.
- Mao, Z., Shi, Q., Zhang, L., & **Cao, H.** (2009). The formation and UV-blocking property of needle-shaped ZnO nanorod on cotton fabric. *Thin Solid Films*, 517(8), 2681-2686.
- Cao, H.**, Nam, J., Harmon, H. J., & Branson, D. H. (2007). Spectrophotometric detection of organophosphate diazinon by porphyrin solution and porphyrin-dyed cotton fabric. *Dyes and Pigments*, 74(1), 176-180.
- Barnes, B., Kang, M., & **Cao, H.** (2006). Sustainable characteristics of earthbag housing. *Housing and Society*, 33(2), 21-32.
- Peksoz, S., Branson, D., **Cao, H.**, Jacobson, B., Farr, C., & Nam, J. (2006). Evaluation of two liquid cooled prototype vests through human subject testing. *Research Journal of Textile and Apparel*, 10(3), 17-27.
- Cao, H.**, Branson, D. H., Peksoz, S., Nam, J., & Farr, C. A. (2006). Fabric selection for a liquid cooling garment. *Textile Research Journal*, 76(7), 587-595.
- Cao, H.**, Frey, L. V., Farr, C. A., & Gam, H. (2006). An environmental sustainability course for design and merchandising students. *Journal of Family & Consumer Sciences*, 98(2), 75-80.
- Farr, C., Ownbey, S., Branson, D., **Cao, H.**, & Starr, C. (2005). Multimedia and problem-based learning in the textile laboratory. *Clothing and Textiles Research Journal*, 23(4), 360-367.
- Nam, J., Branson, D. H., Ashdown, S., **Cao, H.**, Jin, B., Peksoz, S., & Farr, C. A. (2005). Fit analysis of liquid cooled vest prototypes using 3D body scanning technology. *Journal of Textile and Apparel Technology and Management*, 4(3). (http://www.tx.ncsu.edu/jtatm/volume4issue3/articles/Nam/Nam_full_138_05.pdf).

Cao, H., Branson, D. H., Nam, J., Peksoz, S., & Farr, C. A. (2005). Development of a cooling capability test method for liquid cooled textile systems. *Journal of ASTM International*, 2(1), Paper ID: JAI12100.

Branson, D. H., Farr, C. A., Peksoz, S., Nam, J., & **Cao, H.** (2005). Development of a prototype personal cooling system for first responders: User input. *Journal of ASTM International*, 2(2), Paper ID: JAI12105.

Cao, H., Hardin, I. R., & Akin, D. E. (2001). Optimization of conditions for microbial decolorization of textile wastewater: Starch as carbon source. *AATCC Review*, 1(10), 37-42.

Hardin, I. R., **Cao, H.**, Wilson, S., & Akin, D. E. (2000). Decolorization of textile wastewater by selective fungi. *Textile Chemist and Colorist & American Dyestuff Reporter*, 32(11), 38-42.

EDITOR REVIEWED JOURNAL PUBLICATION

Epps, H. H., Major, C., & **Cao, H.** (2000). A practical comparison of color measurements. *Textile Chemist and Colorist & American Dyestuff Reporter*, 32(6), 21-23.

REGREED CONFERENCE PROCEEDINGS (FULL PAPER)

Peksoz, S., **Cao, H.**, Park, H., An, S. K., Branson, D. (2010). *Core temperature prediction modeling using a sweating manikin*. Proceedings of the 8th International Meeting for Manikins and Modeling (8I3M), Victoria, British Columbia, Canada, August 2010.

Peksoz, S., Park, H., An, S. K., & **Cao, H.** (2009). *Smart clothing for firefighter protection*. Proceedings of the Intelligent Textiles and Mass Customization International Conference, Casablanca, Morocco, November 2009.

REFEREED CONFERENCE PRESENTATIONS, POSTERS AND PUBLICATIONS

Cao, H., Bonanno, P., Lipschitz, S., Chang, R., & Pegg, S. (2010, October). *A university-industry collaboration on apparel lifecycle assessment*. Special topic presentation at the 2010 annual meeting of International Textile and Apparel Association, Montreal, Canada.

Cao, H., Chang, R., Kallal, J., Manalo, G., McCord, J., Shaw, J., & Starner, H. (2010, October). *Adaptable apparel design: a possible solution for excess apparel consumption problem*. Poster presented at the 2010 annual meeting of International Textile and Apparel Association, Montreal, Canada.

Nam, J., Peksoz, S., Branson, D., **Cao, H.**, & Shehab, R. (2010, October). *Methodological approaches for assessing performance of arm armor systems*. Poster presented at the 2010 annual meeting of International Textile and Apparel Association, Montreal, Canada.

- Nam, J., Peksoz, S., Branson, D., **Cao, H.**, & Shehab, R. (2010, October). *Arm Armor Systems: Fit Analysis and Performance Factors*. Poster presented at the 2010 annual meeting of International Textile and Apparel Association, Montreal, Canada.
- Kamenidis, P., Branson, D., Perksoz, S., & **Cao, H.**, (2010, October). *Vacuum sealing, 3D spacer, and lining effect on dry thermal and evaporative resistance of multi-layered samples simulating the construction of body armor*. Paper presented at the 2010 annual meeting of International Textile and Apparel Association, Montreal, Canada.
- Peksoz, S., **Cao, H.**, Park, H., An, S. K., Branson, D. (2010, August). *Core temperature prediction modeling using a sweating manikin*. Paper presented at the 8th International Meeting for Manikins and Modeling (8I3M), Victoria, British Columbia, Canada.
- Park, H., An, S. K., Peksoz, S., **Cao, H.**, & Branson, D. (2010, May). *Core body temperature prediction through monitoring of microclimate under body armor using thermal manikin*. Paper presented at American Association of Textile Chemists and Colorists 2010 International Conference, Atlanta, GA.
- Peksoz, S., Park, H., An, S. K., & **Cao, H.** (2009, November). *Smart clothing for firefighter protection*. Paper presented at the Intelligent Textiles and Mass Customization International Conference, Casablanca, Morocco.
- An, S. K. Park, H., Peksoz, S., Branson, D., & **Cao, H.** (2009, October). *Development of estimation model to predict firefighter's core temperature from microclimate data*. Paper presented at the 2009 annual meeting of International Textile and Apparel Association, Bellevue, WA.
- Kamenidis, P., Branson, D., Perksoz, S., & **Cao, H.**, (2009, October). *The vacuum sealing effect on dry thermal and evaporative resistance of multi-layered samples for two ballistic materials*. Paper presented at the 2009 annual meeting of International Textile and Apparel Association, Bellevue, WA. (This paper was the best paper on the Textile/Apparel Science track).
- Cao, H.**, Kang, M., Farr, C. A., & Park, H., (2009, May). *Advancing public's role in sustainable development*. Poster presented at the 40th Annual Meeting of the Environmental Design Research Association, Kansas City, MO.
- Cao, H.**, An, S. K., Park, H., Xu, B. Li, X., & Branson, D., (2008, November). *The effect of fabric covering on sensor's humidity measurement*. Paper presented at the 2008 annual meeting of International Textile and Apparel Association, Schaumburg, IL.
- An, S. K., Kamenidis, P. **Cao, H.**, Peksoz, S., Branson, D., & Starr, C., (2008, November). *Evaluation of evaporative resistance of multi-layer ballistic fabrics*. Paper presented at the 2008 annual meeting of International Textile and Apparel Association, Schaumburg, IL.

- Rumsey, R., **Cao, H.**, Gam, H., & Farr, C., (2008, November). *The design of men's jacket for material recovery*. Poster presented at the 2008 annual meeting of International Textile and Apparel Association, Schaumburg, IL.
- Bennett, J. Helmkamp, C, Gam, H., **Cao, H.**, Rumsey, R, & Farr, C. A. (2008, November). *Exploring a sustainable apparel design method: Case study of creating a man's jacket for easy disassembly*. Paper presented at the 2008 annual meeting of International Textile and Apparel Association, Schaumburg, IL.
- Jin, B., Swinney, J., **Cao, H.**, Muske, G., Kang, J., & Nam, J., (2007, November). *Doing business with China: Curriculum internationalization through infusion method*. Paper presented at the 2007 annual meeting of International Textile and Apparel Association, Los Angeles, CA.
- Gam, H., Farr, C. A., & **Cao, H.** (2007, November). *An investigation of mothers acceptance of children organic cotton clothing*. Paper presented at the 2007 annual meeting of International Textile and Apparel Association, Los Angeles, CA.
- Cao, H.**, Nam, J., & Branson, D. H. (2007, November). *Detection of carbamate by porphyrin solution and porphyrin-dyed mercerized cotton fabric*. Paper presented at the 2007 annual meeting of International Textile and Apparel Association, Los Angeles, CA.
- Barnes, B., Kang, M., & **Cao, H.** (2007, March). *Sustainable characteristics of earthbag housing*. Paper presented at the 2007 international conference of Interior Design Educators Council, Austin, TX.
- Gam, H., **Cao, H.**, Farr, C. A., Heine, L., & Hur, J.-Y. (2006, November). *Development and implementation of C2CAD: a cradle to cradle apparel design and production model*. Paper presented at the annual meeting of International Textile and Apparel Association, San Antonio, TX.
- Cao, H.**, Gam, H., Farr, C. A., & Frey, L. V. (2006, November). *The effects of an environmental sustainability course on design and merchandising students' environmental attitude, awareness and knowledge*. Paper presented at the annual meeting of International Textile and Apparel Association, San Antonio, TX.
- Cao, H.**, Farr, C. A., Frey, L. V., Gam, H., & Woods, A. B. (2006, June). *Teaching sustainable design through a case study approach*. Learning lab presented in the educational sessions, the 97th annual conference of American Association of Family & Consumer Sciences, Charlotte, NC.
- Cao, H.**, Vogel, L. M., Gam, H., Farr, C. A., Nam, J., & Linder, R. S. (2005, November). *Teaching environmental sustainability in design and merchandising curriculum*. Poster session presented at the annual meeting of International Textile and Apparel Association, Alexandria, VA.
- Cao, H.**, Harmon, H. J., & Branson, D. H. (2005, November). *Detection of organophosphate by porphyrin solution and porphyrin-dyed cotton fabric*. Paper presented at the annual meeting of International Textile and Apparel Association, Alexandria, VA.

- Nam, J., Branson, D. H., Ashdown, S., **Cao, H.**, & Schoenfelder, K. (2005, November). *3D body scanning: Methods and data analysis development for quantifying ease*. Paper presented at the annual meeting of International Textile and Apparel Association, Alexandria, VA. (This paper won Lectra Innovation Award for Faculty Research).
- Cao, H.**, Vogel, L. M., Gam, H., & Farr, C. A. (2005, March). *Teaching cradle to cradle design through a science-based case study approach*. Poster session presented at the 2005 international conference of Interior Design Educators Council, Savannah, GA.
- Peksoz, S., Branson, D., Nam, J., **Cao, H.**, & Farr, C. A. (2004, November). *A physiological study of effectiveness of two prototype portable cooling vests*. Paper presented at the annual meeting of International Textile and Apparel Association, Portland, OR.
- Nam, J., Branson, D., Ashdown, S., **Cao, H.**, & Peksoz, S. (2004, November). *Anthropometric data: Input for cooling garment prototype development and sizing system development*. Paper presented at the annual meeting of International Textile and Apparel Association, Portland, OR.
- Nam, J., Branson, D., Ashdown, S., **Cao, H.**, & Jin, B. (2004, November). *Fit analysis of liquid cooled vest prototypes using 3D body scanner*. Paper presented at the annual meeting of International Textile and Apparel Association, Portland, OR.
- Cao, H.**, Harmon, H. J., Nam, J., & Branson, D. H. (2004, October). *Spectroscopic detection of cyanide in water using porphyrin dyed cotton fabrics*. Paper presented at the annual meeting of the Fiber Society, Ithaca, NY.
- Cao, H.**, Branson, D. H., Nam, J., Peksoz, S., & Farr, C. A. (2004, January). *Development of a cooling capability test method for liquid-cooled textile systems*. Paper presented at the Eighth Symposium on Performance of Protective Clothing, sponsored by ASTM Committee F23, Tampa, FL.
- Branson, D. H., Farr, C. A., Peksoz, S., Nam, J., & **Cao, H.** (2004, January). *Development of a prototype personal cooling system for first responders: User input*. Paper presented at the Eighth Symposium on Performance of Protective Clothing, sponsored by ASTM Committee F23, Tampa, FL.
- Cao, H.**, Branson, D. H., Jansen, B., & Farr, C. A. (2003, November). *Liquid cooling garments: A study of water flow rate*. Paper presented at the annual meeting of International Textile and Apparel Association, Savannah, GA.
- Hardin, I. R., **Cao, H.**, Zhao, X., & Wilson, S. (2001, October). *Fungal decolorization and molecular structures of dyes in textile effluents*. Paper presented at American Association of Textile Chemists and Colorists 2001 International Conference and Exhibition, Greenville, SC.
- Cao, H.**, & Hardin, I. R. (2000, September). *Optimization of conditions for effective microbial decolorization of textile wastewater*. Paper presented at American

Association of Textile Chemists and Colorists 2000 International Conference and Exhibition, Winston-Salem, NC.

Cao, H., Hardin, I. R., & Akin, D. E. (2000, May). *Fungal decolorization of textile dyes: Effects of glucose and dye concentration*. Paper presented at the Symposium on Biotechnology in the Textile Industry, Portugal.

Hardin, I. R., **Cao, H.**, Wilson, S., & Akin, D. E. (1999, October). *Microbial decolorization of textile wastewater*. Paper presented at American Association of Textile Chemists and Colorists 1999 International Conference and Exhibition, Charlotte, NC.

INVITED PRESENTATIONS

Cao, H. (2010, September). *Sustainable apparel design*. Presented at “Textiles in a Global World: An Interdisciplinary Conversation” Symposium, Newark, DE.

Cao, H. (2009, December). *University of Delaware Sustainable Apparel Initiative*. Presented at American Association of Textile Chemists and Colorists (AATCC) Fashion Trends, Technologies, and Sustainability in Denim and Garment Wet Processing Symposium, Long Beach, CA.

Branson, D. H., Farr, C. A., **Cao, H.**, Peksoz, S., Nam, J., & Gam, H. (2004, September). *Development of a personal cooling system for first responders: Garment component*. Presented at Microclimate Cooling Conference: Personal Cooling-“A Hot Topic”, sponsored by the Defense Threat Reduction Agency, U.S. Army Natick Soldier Center and Battelle Natick Operations, Natick, MA.

Branson, D. H., Farr, C. A. & **Cao, H.** (2003, May). *Development of a prototype personal cooling system for first responders in level A gear*. Presented at INFire annual conference, Impact of Terrorism in the Information Age, Oklahoma City, OK.

FUNDED GRANTS (EXTERNAL)

Cao, H. (PI, Faculty Advisor), Wool, R., Bannano, P., Kramer, J., Lipschitz, S., & Senoz, E., Development of apparel and footwear from renewable sources, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — **Funded** \$10,000 from Aug. 2010 to Aug. 2011.

Cao, H. (PI, Faculty Advisor), Chang, R., McCord, J., Shaw, J., Starner, H., & Kallal, J., Change without buying: Application of adaptable design in apparel, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — **Funded** \$10,000 from Aug. 2009 to Aug. 2010.

Cao, H. (PI), Li, X., & Branson, D. H., Smart Clothing for Firefighter Protection, Oklahoma Center for the Advancement for Science and Technology (OCAST),

Oklahoma Applied Research Support (OARS) Program. — **Funded** \$90,000 from Feb. 2008 to Jan. 2010. (PI changed to Dr. Semra Peksoz due to Dr. Cao's departure from Oklahoma State University in August 2008)

Cao, H. (PI, Faculty Advisor), Rumsey, R., Gam, H., Farr, C. A., & Heine, L., The Man's Jacket Design for Disassembly: an Implementation of C2CAD Framework, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — **Funded** \$9,999 from Sept. 2007 to Aug. 2008.

Cao, H. (PI), Kang, M., & Farr, C. A., Building a Sustainable Oklahoma, U.S. Environmental Protection Agency, Environmental Education Grants Program — **Funded** \$16,600 from August 2007 to July 2009. (PI changed to Dr. Cheryl Farr due to Dr. Cao's departure from Oklahoma State University in August 2008)

Branson, D. H. (PI), Peksoz, S., **Cao, H.**, & Farr, C. A., Institute for Protective Apparel Research and Technology, Office of Naval Research. — **Funded** \$3,081,673 from October 2006 to July 2009.

Peksoz, S. (PI), Branson, D. H., **Cao, H.**, & Farr, C. A., Ultra-lightweight Modular Cooling System (Phase II), Homeland Security Advanced Research Projects Agency (HSARPA), sub-contract with NanoPore Inc. — **Funded** \$128,155 from 2006 to 2008.

Cao, H. (PI, Faculty Advisor), Gam, H., Hur, J., Farr, C. A., & Heine, L., C2CAD: A Sustainable Apparel Design and Production Conceptual Framework, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — **Funded** \$10,000 from Sept. 2005 to Aug. 2006.

Cao, H. (PI, Faculty Advisor), Woods, A. B., Steiner, K., Vogel, L., & Pearson, J., Design of Sustainable Relief Housing in Africa: an Implementation of "Cradle to Cradle" Model in Earthbag Construction, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — **Funded** \$10,000 from Sept. 2005 to Aug. 2006.

Branson, D. H. (PI), & **Cao, H.**, Ultra-lightweight Modular Cooling System (Phase I), Homeland Security Advanced Research Projects Agency (HSARPA), sub-contract with NanoPore Inc. — **Funded** \$15,000 from Nov. 2004 to March 2005.

Cao, H. (PI), Branson, D. H., & Harmon, H. J., Smart Textiles for Chemical Detection, National Science Foundation and U.S. Intelligence Community, Approaches to Combat Terrorism. — **Funded** \$100,000 from March 2004 to Feb. 2005.

Cao, H. (PI), Vogel, L. M., & Farr, C. A., Course Development of "Environmental Issues for Designers and Merchandisers", National Science Foundation, Division of Undergraduate Education. — **Funded** \$75,000 from Jan. 2004 to Dec. 2005.

FUNDED GRANTS (INTERNAL)

Cao, H., Integrating a wireless sensor network into first responder protective clothing (Part of multi-state USDA cooperative project NC-170 “Personal Protective Technologies for Current and Emerging Occupational Hazards”), Oklahoma Agricultural Experiment Station —**Funded** \$85,294 from July 2007 to June 2009. (PI changed to Dr. Semra Peksoz due to Dr. Cao’s departure from Oklahoma State University in August 2008)

Cao, H., Chemical detection smart textile (Part of multi-state USDA cooperative project NC-170 “Mediating Exposure to Environmental Hazards through Textile Systems”), Oklahoma Agricultural Experiment Station —**Funded** 25% faculty salary, 50% MS graduate assistantship, \$2000 maintenance for each academic year from July 2004 to June 2007.

GRANT PROPOSAL UNDER REVIEW

Cao, H. (PI, Faculty Advisor), Frett, J., Howard, C., Piro, K., & Tattersall, H., Twenty-mile clothing: localized production of apparel and accessories from agriculture-based materials, U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet. — Submitted December 2010 to request \$15,000.

UNFUNDED GRANT PROPOSALS

Cao, H. (PI, Faculty Advisor), Chang, R., McCord, J., Shaw, J., Starner, H., & Kallal, J., Change without buying: Application of adaptable design in apparel Framework (Phase II), U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet, Requested \$75,000 — Submitted March 2010, Not Funded.

Kim, H.-S. (PI), Dickson, M., Lennon, S., **Cao, H.**, Enhancing U.S. Global Competencies Related to Fashion International Business with FIBER Online Learning Center, U.S. Department of Education, Business and International Education Program, Requested \$182,998 — Submitted January 2010, Not Funded.

Cao, H. (PI), Reducing Textile-related Carbon Emissions on Campus, University of Delaware Sustainability Fund, Requested \$11,000 — Submitted October 2009, Not Funded.

Kim, H.-S. (PI), Dickson, M., Lennon, S., **Cao, H.**, Expanding International Fashion Business Education and Increasing Global Outreach, U.S. Department of Education, Business and International Education Program. — Submitted April 2009 to request \$173,112, Not Funded.

Li, X. (PI), Branson, D., Peksoz, S., Kong, J., **Cao, H.**, Rahnavard, N., Sheng, W., Cheng, Q., Larranaga, M., First Guard: Smart Protection, Sensing and Rescue System for Firefighters, U.S. Department of Homeland Security. — Submitted March 2009 to request \$77,179 University of Delaware sub-award from Oklahoma State University (the PI and all other co-PIs were from OSU, and the proposal was submitted by OSU to U.S. DHS), Not Funded.

Cao, H. (PI, Faculty Advisor), Rumsey, R., Gam, H., Farr, C. A., & Heine, L., The Man's Jacket Design for Disassembly: an Implementation of C2CAD Framework (Phase II), U.S. Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet, Requested \$69,187 — Submitted March 2008, Not Funded.

Cao, H. (PI), Fan, G., Li, X., Branson, D. H., MRI: Acquisition of a Motion Capture System, National Science Foundation, Major Research Instrumentation, Requested \$213,290 — Submitted January 2008, Not Funded.

Cao, H. (PI), Li, X., & Branson, D. H., Smart Clothing for Firefighter Protection, Oklahoma Center for the Advancement for Science and Technology (OCAST), Oklahoma Applied Research Support (OARS) Program, Requested \$90,000 – Submitted April 2007, Not Funded.

Farr, C. A. (PI), **Cao, H.**, Branson, D., & Ownbey, S., Non-Science Students' Learning Style: A Basis for Development of Active Learning Experiences and Technology-based Materials Used in Science-based Textile Instruction, National Science Foundation, Division of Undergraduate Education, Requested \$415,345 — Submitted January 2007, Not Funded.

Cao, H. (PI), Li, X., Branson, D. H., Peksoz, S., & Brown, J. D., Smart Clothing for Firefighter Protection, National Institute for Occupational Health and Safety, Requested \$356,747 – Submitted September 2006, Not Funded.

Kang, M. (PI), & **Cao, H.**, Environmentally Sustainable Interior Materials Education, National Science Foundation, Division of Undergraduate Education, requested \$150,000 — Submitted May 2006, Not Funded.

Farr, C. A. (PI), **Cao, H.**, Branson, D., & Ownbey, S., Non-Science Students' Learning Style: A Basis for Development of Active Learning Experiences and Technology-based Materials Used in Science-based Textile Instruction, National Science Foundation, Division of Undergraduate Education, requested \$500,000 — Submitted January 2006, Not Funded.

Cao, H. (PI, Faculty Advisor), Gam, H., Hur, J., Farr, C. A., & Heine, L., C2CAD: A Sustainable Apparel Design and Production Conceptual Framework (Phase II), Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet, requested \$75,000 — Submitted April 2006, Not Funded.

Cao, H. (PI, Faculty Advisor), Woods, A. B., Drab, T., & Pearson, J., Design of Sustainable Relief Housing in Africa: an Implementation of "Cradle to Cradle" Model in Earthbag Construction (Phase II), Environmental Protection Agency, P3 Award: A National Student Design Competition for Sustainability Focusing on People, Prosperity, and the Planet, requested \$75,000 — Submitted April 2006, Not Funded.

Kim, W. (PI), **Cao, H.**, & Johnson, C., Towards a Framework for Small Business Owners' Disaster Management, National Science Foundation, requested \$99,619 — Submitted September 2005, Not Funded.

Cao, H. (PI), Peksoz, S., & Branson, D. H., Evaluation of the Cooling Capability of Phase Change Materials Used for Liquid Cooling Textile System, American Society for Safety Engineers Foundation, requested \$20,000. – Submitted September 2004, Not Funded.

Farr, C. A. (PI), Ownbey, S. F., Branson, D. H., & **Cao, H.**, Non-Science Students' Learning Style: A Basis for Development of Active Learning Experiences and Technology-based Materials Used in Science-based Textile Instruction, National Science Foundation, Division of Undergraduate Education. — Submitted June 2003, Not Funded.

Branson, D. H. (PI), **Cao, H.**, & Harmon, H. J., Smart Textiles for Chemical Detection, Oklahoma Center for the Advancement for Science and Technology (OCAST), Oklahoma Applied Research Support (OARS) Program, requested \$235,228 for 3 years. — Submitted April 2003, Not Funded.

GRADUATE STUDENT ADVISEMENT

Ph.D. Committee Member, Cathy Starr (DHM, Graduate in December 2010)
Dissertation: Thermal manikin evaluation of material component and design features on heat and moisture transfer of Quadgard™

M.S. Committee Member, Panagiotis Kamenidis (DHM, Graduated in May 2009)
Thesis: Effect of trapped air on heat and moisture resistance of multilayered soft body armors

Ph.D. Committee Member, Jinhee Nam (DHM, Graduated in May 2009)
Dissertation: Arm armor systems: Fit analysis and performance factors

Ph.D. Committee Member, Jason Robinson (Photonics, Graduated in August 2008)
Dissertation: Destruction of 2,4,6-trinitrotoluene by novel porphyrin-based photocatalyst

Ph.D. Co-Advisor, Haejin Gam (DHM, Graduated in May 2007)
Dissertation: Development and implementation of a sustainable apparel design and production model
Student award: Haejin Gam won CHES 2007 Outstanding Graduate Student Award at the doctoral level.

M.S. Major Advisor, Brooke Woods (DHM, Graduated in May 2006)
Creative Component Report: The design of sustainable relief housing in Ethiopia: an implementation of cradle to cradle model in earthbag construction

M.S. Committee Member, Jason Robinson (Physics, Graduated in May 2005)
Report: Usage of porphyrin and phthalocyanine compounds in the development of textile based sensors including the role of selective partitioning in low level detection of compounds

M.S. Committee Member, Chialing Khoo (DHM, Graduated in May 2005)
Creative Component Report: The older population: designing environments to prolong independent living

M.S. Committee Member, Jinhee Nam (DHM, Graduated in May 2004)
Thesis: Development, modification and fit analysis of liquid-cooled vest prototypes using 3D body scanner

M.S. Committee Member, Shanqing Zhang (DHM, Graduated in December 2002)
Thesis: Articulating in the in-between realm: a symbolic solution to the interior environment in Chinese residential context

PROFESSIONAL DEVELOPMENT

Attended 2010 ITAA annual conference, Montreal, Canada, October 2010.

Attended AATCC “Fashion Trends, Technologies, and Sustainability in Denim and Garment Wet Processing Symposium,” Long Beach, CA, December, 2009.

Attended AAFA symposium “Sustainability: Turning responsibility into opportunity,” Portland, OR, May 2009.

Attended 2008 ITAA annual conference, Schaumburg, IL, November 2008.

Attended 2008 U.S. EPA National Sustainable Design Expo, Washington, DC, April 2008.

Attended 2007 ITAA annual conference, Los Angeles, CA, November 2007.

Attended 2006 ITAA annual conference, San Antonio, TX, November 2006.

Attended 2006 AAFCS annual conference, Charlotte, NC, June 2006.

Attended 2006 U.S. EPA National Sustainable Design Expo, Washington, DC, May 2006.

Attended 2006 AAFA Global Forum and Professional Leadership Council Meeting, Merida, Mexico, March 2006.

Attended 2005 ITAA annual conference, Alexandria, VA, November 2005.

Attended “OCAST Oklahoma Applied Research Support (OARS) Proposal Preparation Workshop”, Oklahoma State University, February 2005.

Attended 2004 Fiber Society annual conference, Ithaca, NY, October 2004.

Attended NSF Approaches to Combat Terrorism PI Workshop in Arlington, VA, June 2004.

Attended EnvironDesign 8 conference and GreenBlue “Cradle to Cradle” pre-conference workshop, Minneapolis, MN, April, 2004.

Attended the Eighth Symposium on Performance of Protective Clothing, Sponsored by ASTM Committee F23, Tampa, FL, January 2004.

Attended “Understanding the Grant and Contracts Processes at OSU” training at Oklahoma State University, January 2004

Attended 2003 ITAA annual conference, Savannah, GA, November, 2003.

Attended Faculty Technology Workshop, Oklahoma State University, August 2003.

Attended “SBIR/STTR Phase I Workshop: A Competitive Strategy for Funding R&D”, Sponsored by Oklahoma Center for the Advancement of Science and Technology (OCAST), Held at Meridian Technology Center for Business Development, Stillwater, OK, August 2002.

Attended “OCAST Oklahoma Applied Research Support (OARS) Proposal Preparation Workshop”, Oklahoma State University, August 2002.

INTERNATIONAL ACTIVITIES

Presented “Recent advances in sustainable textile and apparel industry development”, Donghua University, Shanghai, China, June 2010.

Presented “Sustainable Development in Textile, Apparel and Related Areas”, Donghua University, Shanghai, China, March 2007.

Presented “The Applications of Cradle-to-Cradle Model in Industry”, Donghua University, Shanghai, China, May 2005.

Presented “The Applications of Cradle-to-Cradle Model in Industry”, Shanghai University of Engineering Science, Shanghai, China, May 2005.

PROFESSIONAL SERVICE

Scientific Excellence Advisor, National Textile Center, 2005-2006

Member, Sustainable Textile Standard Development Task Group (Coordinated by NSF International, Green Blue Institute, and Association for Contract Textiles), 2006-2008

Ad-hoc Reviewer

National Science Foundation

Natural Sciences and Engineering Research Council of Canada

Kentucky Science and Engineering Foundation

Florida Research Commercialization Matching Grant Program (FRCMGP)

Louisiana Board of Regents Support Fund

Carbohydrate Polymers

Textile Research Journal
Archives of Environmental Contamination and Toxicology
Clothing and Textiles Research Journal
The Open Textile Journal
European Journal of Applied Physiology
Journal of Membrane Science
Journal of Applied Polymer Science
Dyes and Pigments
Journal of ASTM International
International Textiles and Apparel Association 2006 annual conference
International Textiles and Apparel Association 2007 annual conference
International Textiles and Apparel Association 2009 annual conference
International Textiles and Apparel Association 2010 annual conference

UNIVERSITY/COLLEGE/DEPARTMENT SERVICE

University Service

OSU Aerospace Industry Task Force, 2007

Discussion Panel Member, OSU new faculty orientation (Nominated by CHES Dean Knaub, I discussed effective teaching and strategies for achieving academic success at OSU in the panel.), 2006

OSU Environmental Science Steering Council Member, 2005-2008

OSU Honors Council Member, 2005-2008

College Service

CAS Department (FASH department) Chairperson Review Committee Member, 2010

CEPP Graduate Studies Committee Member, 2009-2010

CEPP Strategic Planning Committee Member, 2009-2010

CHES Environmental Safety Committee Member, 2006-2008

CHES Academic Affair Committee Member, 2004-2005

Department Service

FASH Assistant Professor Search Committee Chair, 2010

FASH Promotion & Tenure Committee Chair, 2009-

FASH University of Delaware Sustainable Apparel Initiative Co-director, 2008-

FASH Strategic Planning Committee Member, 2009

FASH Graduate Studies Committee Member, 2008-2009

FASH Assistant Professor Search Committee Member, 2008-2009

DHM Scholarship Committee Member, 2004-2005

DHM Internship Scholarship Committee Member, 2004

Organized DHM Salmon Endowed Professor Michael Braungart's OSU visit, 2004

Presented DHM cutting edge research to CHES alumni board, 2004

Presented protective clothing research in 2003 Career Horizon, 2003

PROFESSIONAL AFFILIATION

International Textiles and Apparel Association, member

HONORS AND AWARDS

Nam, J., Branson, D. H., Ashdown, S., **Cao, H.**, & Schoenfelder, K. *3D body scanning: Methods and data analysis development for quantifying ease*. International Textile and Apparel Association 2005 Lectra Innovation Award for Faculty Research.