CURRICULUM VITAE

Xin (Sheen) Hu, Ph.D., P.E., L.C.

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Expertise

Experienced in diverse areas of Architectural Engineering and Building Science, including Heating Ventilation and Air Conditioning, Lighting and Building Electrical Systems, Architectural Acoustics, Indoor Air Quality, Thermal Comfort and Building Energy Simulation and Analysis.

Education

Ph.D - Architectural Engineering, 8/2004

University of Nebraska-Lincoln

- Major in Lighting and Building Electrical Systems, and Minor in Heating, Ventilation and Air Conditioning Engineering (HVAC)
- GPA: 3.98/4.0

Master of Science - Mechanical Engineering - HVAC, 1/1998

Tianjin University, China

Bachelor of Science - Mechanical Engineering - HVAC, 6/1995

Hunan University, China

Experience

Research Assistant Professor 9/2004 - present

University of Nevada-Las Vegas, Las Vegas, NV

- Served as the Co-principal Investigator and research scientist for several Department of Energy research projects (totaling $3 million budget). Developed test protocols and tools to survey the building energy performance and indoor environment quality, including indoor air quality (IAQ), mold, thermal comfort, sound and lighting. Conducted data analyses and wrote project reports.
- Designed new improvements to the UNLV full-scale heating, ventilation and air conditioning (HVAC) test laboratory. This laboratory has first of its kind capabilities in test environment control and flexible automatic test measurement. Designed control systems and developed automatic measurement and data acquisition systems for the laboratory.
- Severed as the guest lecturer in Interior Lighting Design, an undergraduate/graduate course of the School of Architecture; taught two subjects, Lighting and Colors and Lighting Calculations.

Research Assistant 8/2000 - 8/2004

University of Nebraska-Lincoln, Omaha, NE

- Lectured in lighting calculations and HVAC fundamentals.

- Simulated and tested fluorescent lamps and ballasts, funded by the American Public Power Association.
- Evaluated performance and energy efficiency of prototype fluorescent lamps, funded by the California Energy Commission.
- Conducted computer simulations with Energy Plus and analysis of building systems, funded by the Department of Energy.
- Studied the effects of viewing size and light spectrum to human color perceptions.

Technical Engineer 10/1997 - 7/2000

Carrier Air Conditioning Company

- Provided HVAC product consulting, selected best Air conditioning systems, and solved technical problems.

Ciebe Environmental Control Company

- Designed building automatic control systems, selected building control products and provided consulting to customers.

Intern Engineer 4/1997 - 10/1997

Qinghua Tongfang Company

- Designed building HAVC systems and control systems.

Skills

Computer Programs

- Energy Simulation Programs: EnergyPlus, DOE2, BLAST
- Lighting Programs: AGI32, Lumen Designer, Visual, Radiance, SkyCal, GE Light Beams
- Software Tools: AutoCAD, SolidWorks, Microsoft Office, MS Project, Maples, MATLAB, Design Expert, SPSS
- Programming Languages: VC++, VB, Fortran

Measurements and Instruments

- Measurements: Temperature, Humidity, Velocity, Flow Rate, Heat Conductivity, Carbon Dioxide/Monoxide, Nitrogen Dioxide, Illuminance, Luminance, Reflectance, Light Spectral Power Distribution, CRI, CCT, Power
- Instruments: Thermometer, Hygrometer, Anemometer, Pitometer, Bolometer, Illuminance meter, Luminance meter, CCD Photometric meter, Reflectance meter, Spectrometer, Power meter, WattNodes
- Automatic Data Acquisition: National Instruments Labview

Credentials

- 1/2006, Professional Engineer in Mechanical Engineering from the State of Nevada
- 12/2004, Lighting Citified by the National Council on Qualifications for the Lighting Professions
- 4/1998, Programmer/Computer Software Engineer

Publications

Journal Papers under Preparation

1. Hu X, Landsberger B, Tan L, Stetzenbach L. Lighting Quality and Energy Performance Survey in Office Buildings.
2. Tan L, Hu X, Landsberger B, Stetzenbach L. Thermal Comfort and Indoor Air Quality Survey in Office Buildings.
3. Hu X, Houser KW, Tiller D. Higher Color Temperature Lamps May Not Appear Brighter.
4. Hu X, Houser KW. A Study of the Variation in Color Matching Functions with Respect to Primary Set.

Papers in Refereed Journals

1. Hu X, Houser KW. Large Field Color Matching Functions. Color Research and Applications. 2006, 31(1):18-29.
2. Hu X, Houser KW. Algebraic Expressions of the CIE Standard Observers and Stockman Cone Fundamentals. Leukos, the Journal of the Illuminating Engineering Society 2004-2005, 1(4).
3. Houser KW, Hu X. The UNL Trichromatic Colorimeter. Color Research and Applications. 2005, 30(3):209-220.
4. Houser KW, Hu X. Equal Authorship. Visually Matching Daylight Fluorescent Lamplight with Two Primary Sets. Color Research and Applications. 2004, 29(6):428-437.
5. Houser KW, Tiller DK, Hu X. Tuning the Fluorescent Spectrum for the Trichromatic Visual Response: a Pilot Study. Leukos, the Journal of the Illuminating Engineering Society 1(1):7-22.
6. Hu X, Houser KW. Algebraic Expression of V(λ). Journal of the Illuminating Engineering Society. 2004 (1). 30-33.
7. Hu X, Houser KW. A Versatile Spectral Lamp Measurement System. IEEE Transactions on Instrumentation and Measurement. 2003(4). 832-838.
8. Hu X, Houser KW. Spectral and Electrical Performance of Screw-Based Dimmable Compact Fluorescent Lamps. Lighting Research & Technology. 2003, 35(4). 331-342.
9. Hu X, Long W, Ma J. CEC: an Energy Evaluation Method of Air Conditioning Systems. HV&AC. China. 1999(3). 16-18.
10. Long W, Pang Y, Fang C, Hu X. Analysis of Energy Consumption Status and Energy Efficiency Potentials in Commercial Buildings of Shanghai. HV&AC, China, 1998(6). 13-16.

Papers in Refereed Conference Proceedings

1. Tan L, Hu X, Chen P. Evaluation Method of Temperature Distribution in the Constant Temperature Room with Large Spaces. International Symposium of Air Conditioning in High Rise Buildings 2000. Beijing: China Architecture Industry Press. Beijing. 2000. 522-527.
2. Tan L, Hu X. Numerical Analysis of Air Distribution in a Constant Temperature Room With Large Spaces. International conference proceedings of ROOMVENT 2000. UK: Elsevier Science Press. 2000.
3. Hu X, Tan L, Hu R. BACnet — A Building Automatic Control Communication Protocol. Proceedings of China HVAC&R Conference. 1998(11). 703-706.

Articles in Trade Magazines

1. Stetzenbach LD, Hu X, Landsberger BJ, Moujaes S, Tan L. Building Performance Characterization, Energy Usage, and Indoor Environmental Quality in Office Buildings and Educational Facilities. ASHARE Journal, Jan 2006:12-13.

Research Reports

2. Stetzenbach LD, Hsieh S, Hu X, Landsberger BJ, Moujaes S, Tan L, Novosel D. Final Report: Measurement and Verification Of Building Performance Characteristics. Report to the Department of Energy. 2006. Under preparation.
3. Tan L, Landsberger BJ, Hu X, Novosel D. Final Report: Under Floor Air Distribution (UFAD). 2005. Under preparation.
4. Houser KW, Tiller DK, Hu X. Final Report: Prototype and Demonstration of Vision-Tuned Fluorescent lamps. Report to California Energy Commission. 2003.
5. Hu X. Final Report: Design and Demonstration of High Efficiency Fluorescent Lamps. Report to American Public Power Association, Demonstration of Energy-Efficient Development Program. 2003.

Invited Presentations or Lectures

- Lighting Survey as Part of National Center for Energy Management and Building Technology Task 1: Measurement and Verification of Building Performance Characteristics. At the Meeting of Quality of the Visual Environment Committee, the Illuminating Engineering Society of North America Centennial Conference, New York, NY, Jan 2006.
- Lighting Calculations and Software Tools, Interior Lighting Design Class, University of Nevada Las Vegas, Nov 2005.
- Light and Color, Interior Lighting Design Class, University of Nevada Las Vegas, Sep 2005.
- Spectral Effects Workshops: Summary and Preliminary Results. At the Meeting of Quality of the Visual Environment Committee, the Illuminating Engineering Society of North America, Lightfair, New York, NY, May 2003.
- Tuning the Fluorescent Spectrum for the Trichromatic Visual Response: a Pilot Study. At the Meeting of Quality of the Visual Environment Committee, the Illuminating Engineering Society of North America Annual Conference, Chicago, IL, Aug 2003.
- CEC: an Energy Evaluation Method of Air Conditioning Systems. At the Heating Ventilation and Air-conditioning Shanghai Conference, China. Oct 1998.

Received Awards or Funding

- Taylor Technical Award, Illuminating Engineering Society North America. 2005.
- Co-PI, Energy Performance and Environmental Characteristics of Educational Facilities - Extension and Enhancement of the Building Normative Database, $1,000,000. 2005.
- Researcher, Effects of Different Control Strategies, Diffuser Characteristics and Air Leakage on Draft And Stratification Performance Of Under Floor Air Distribution Systems and The Relevance of the Air Diffusion Performance Index To UFAD Performance, US Department of Energy, $650,000. 2006.
- Researcher, Measurement, Verification and Comparison of Installed UFAD and CAD Systems and Their Impact on Building Performance, US Department of Energy, $774,000. 2005.
- Researcher, Robust Design of Variable Air Volume Systems, Department of Energy through NCEMBT, $395,000. 2005.
- Researcher, Underfloor Air Distribution (UFAD) Measurement and Evaluation, US Department of Energy, $596,000. 2004.
- Researcher, Comparing VAV Duct Designs, US Department of Energy, $217,000. 2004.
- Researcher, Measurement and verification of Building Performance Characteristics, US Department of Energy, $1,185,000. 2004.

- PI, Demonstration of Energy-Efficient Developments (DEED) Research Grant, American Public Power Association. $4,000. 2003.

Service

- Reviewer of papers for the *IEEE Transactions on Instrumentation and Measurement*, 2001 to 2004.
- Reviewer of papers for the American Society of Mechanical Engineering Annual Conference, 2004.

Professional Associations

- Member of the American Society of Heating, Refrigerating, and Air-Conditioning Engineers (ASHRAE)
- Member of the Illuminating Engineering Society of North America (IESNA), Member of IESNA Energy Management Committee and IESNA Effect of Lamp Spectral Distribution Committee
- Member of the International Association of Lighting Designers (IALD)

Professional Training

- *Lighting Emitting Diodes Institute*, Lighting Research Center, Renssellaer Polytechnic Institute, 2005.
- *Faculty Career Review Workshop, Teaching with PowerPoint—Beyond the Basics, Scholarly Work: Publish & Flourish,* Teaching & Learning Center, University of Nevada Las Vegas, 2005.
- *Six Sigma,* Mechanical Engineering, University of Nevada Las Vegas, 2004.