

# Kristopher J. Overholt

---

The University of Texas at Austin  
Department of Mechanical Engineering  
1 University Station C2200  
Austin, TX 78712

Phone: (832) 247-7507  
koverholt@gmail.com  
<http://www.koverholt.com>

## Education

Ph.D. in Mechanical Engineering, The University of Texas at Austin, In Progress  
M.S. in Fire Protection Engineering, Worcester Polytechnic Institute, December 2009  
B.S. in Fire Protection Engineering Technology, University of Houston–Downtown, May 2008

## Engineer in Training Certification

Texas Board of Professional Engineers Certified EIT #40629 - September 19, 2008  
Passed NCEES Fundamentals of Engineering Exam - April 12, 2008

## Research Experience

Graduate Researcher August 2008–December 2009  
**Prof. Ali Rangwala** *Worcester Polytechnic Institute*  
Performed small-scale commodity tests in the cone calorimeter at WPI. The purpose is to experimentally determine the B number (mass transfer number) in order to assess the flammability and suppression of different commodities for storage protection. This work is used to better understand and protect commodity storage in warehouse facilities by utilizing an engineering approach.

Undergraduate Researcher August 2007–May 2008  
**Dr. Alberto Gomez–Rivas** *University of Houston–Downtown*  
Used NIST Fire Dynamics Simulator (FDS) to perform validation on experiments performed at UHD. The experiments involved measuring the mass loss of small-scale ethanol pools and usage of the FDS fuel droplet sub-model to simulate the burning of liquid fuels.

Summer Undergraduate Research Fellowship May 2007–August 2007  
**Dr. Kevin McGrattan** *National Institute of Standards and Technology*  
Performed fire model verification and validation study of intermediate-scale cable fire experiments, added to the verification suite cases and documentation, and contributed to the NIST Fire Dynamics Simulator User's Guide and Verification & Validation Guide.

## Research Interests

Fire Modeling and Simulation & Fire Dynamics  
Fire Dynamics Simulator v5

## Teaching and Tutor Experience

Teaching Assistant January 2010–Present  
Department of Mechanical Engineering, The University of Texas at Austin

Teaching Assistant August 2008–December 2009  
Department of Fire Protection Engineering, Worcester Polytechnic Institute

Adjunct Lecturer, Tutor, and Lab Assistant August 2007–May 2008  
Department of Engineering Technology, University of Houston–Downtown

Teaching Assistant January 2007–May 2007  
Structural Design for Fire Safety, University of Houston–Downtown

## Employment

Research Assistant and Teaching Assistant January 2010–Present  
**The University of Texas at Austin** *Austin, TX*  
Teaching assistant in thermal/fluids systems courses in mechanical engineering. Research assistant to Dr. Ezekoye.

Research Assistant and Teaching Assistant August 2008–December 2009  
**Worcester Polytechnic Institute** *Worcester, MA*  
Research assistant to Prof. Ali Rangwala in the fire science laboratory working with small-scale commodity testing. Teaching Assistant to graduate level courses in the Department of Fire Protection Engineering.

Adjunct Lecturer and Lab Assistant January 2007–May 2008  
**University of Houston–Downtown** *Houston, TX*  
Assisted with the Fire Dynamics, Structural Fire Safety, and Fire Dynamics Simulator courses by lecturing on principles of fire dynamics, creating FDS models that exhibit concepts from the textbook, and providing collaborative tools for students to develop and utilize a materials database within a course project. Assisted with course material by providing support and guidance for FDS usage.

Fire Alarm Technician and IT Admin May 2000–August 2006  
**OMNI Fire and Security Systems** *Houston, TX*  
Field technician for servicing, inspecting, and troubleshooting systems including residential and commercial security alarms, fire alarms, remote camera systems, and access control systems. IT manager and web administrator for small business network. Developed and presented technical training courses. Maintenance and troubleshooting for high-level networking projects.

## Publications

K.J. Overholt, M.J. Gollner, J. Perricone, A.S. Rangwala: Warehouse Commodity Classification from Fundamental Principles. Part II: Flame Heights and Flame Spread. Fire Safety Journal, In Draft.

M.J. Gollner, K.J. Overholt, F.A. Williams, A.S. Rangwala, J.Perricone: Warehouse Commodity Classification from Fundamental Principles. Part I: Commodity & Burning Rates. Fire Safety Journal, Under Review.

K.J. Overholt. Characterizing the Flammability of Storage Commodities Using an Experimentally Determined B-number. Master's thesis, Worcester Polytechnic Institute (2009). ([Link](#))

## Conference Proceedings

K. Overholt, M. Gollner, A. Rangwala: Characterizing the flammability of corrugated cardboard using a cone calorimeter. 6th U.S. National Combustion Meeting, May 2009.

## Conferences

SFPE Annual Conference October 19–21, 2009  
Scottsdale, AZ

Presented “Characterizing the Flammability of Storage Commodities Using a Cone Calorimeter”

6th U.S. National Combustion Meeting, CSSCI May 17–20, 2009  
Ann Arbor, MI

Presented “Characterizing the Flammability of Corrugated Cardboard Using a Cone Calorimeter” at the 6th U.S. National Combustion Meeting.

NIST Annual Fire Conference April 28–April 30, 2009  
Gaithersburg, MD

Presented “Characterizing the Flammability of Corrugated Cardboard Using a Cone Calorimeter”

NIST Annual Fire Conference March 31–April 2, 2008  
Gaithersburg, MD

Presented “Validation of Fire Models: A Model of Thermally-Induced Cable Failure”

SFPE Annual Conference October 15–16, 2007  
Las Vegas, NV

Received “Hat’s Off” Award for effort in creating the SFPE Student Chapter at UHD

NIST Annual Fire Conference April 4–5, 2007  
Gaithersburg, MD

Presented “Evaluating Smoke Detector Spacing Using Fire Modeling and Simulation”

## Presentations

- “The Role of Fire Modeling in Building Fire Safety,”  
WPI Graduate Course in Building Fire Safety, September, 2009.
- “Thermal Response of Sprinklers,”  
WPI Graduate Course in Fire Protection Systems, 2008, 2009.
- “From Research to Engineering: Fire Modeling and the California Wildfires,”  
SFPE Houston Chapter Meeting, November 13, 2007.
- “Verification and Validation of Fire Models,”  
NIST Summer Undergraduate Research Fellowship Presentation, August 8, 2007.
- “Fire modeling with the new Fire Dynamics Simulator v5,”  
UHD Engineering Technology Department Seminar, April 17, 2007.

## Memberships

- Student Member, Society of Fire Protection Engineers, 2004–Present
- President, SFPE WPI Student Chapter, 2009
- Secretary, SFPE WPI Student Chapter, 2008–2009
- Founding President, SFPE UHD Student Chapter, 2007
- Honors Corps, UHD Scholars Academy, UHD, 2007–2008
- Member, UHD Scholars Academy, 2006–2008

## Coursework and Skills

- |                                     |                                    |
|-------------------------------------|------------------------------------|
| NIST Fire Dynamics Simulator v5     | Fire Modeling                      |
| Combustion                          | Computational Fluid Dynamics       |
| Performance-Based Design            | Building Fire Safety               |
| Fire Dynamics                       | Human Factors in Fire Safety       |
| Fire Alarm Signaling Systems        | Industrial Safety                  |
| Structural Design for Fire Safety   | Automatic Fire Suppression         |
| Fluid Mechanics                     | Mac OS X, Linux, Windows           |
| Engineering Mechanics               | MS Word, Excel, PowerPoint, Access |
| Differential Equations              | Python, Numpy, Scipy               |
| Calculus I, II, III                 | MATLAB                             |
| Numerical Methods I & II            | HTML / Website editing             |
| Fire Safety and Hazard Recognition  | Branzfire                          |
| PC Applications in Engineering      | CFAST                              |
| L <sup>A</sup> T <sub>E</sub> X     | Labview                            |
| Google Code / Issue Tracker Support | SVN Versioning System              |

## Honors and Awards

Foundation Student Scholar Award, Society of Fire Protection Engineers, 2009

Honorable Mention, NSF Graduate Research Fellowship, 2009

2<sup>nd</sup> place, Combustion Art Competition, 6th U.S. National Combustion Meeting, 2009

Gerald M. Maatman Fellowship, Kemper Foundation; Fire Science Laboratory, WPI, 2009

Outstanding Graduate – Safety and Fire Engineering Technology, UHD, 2008

LS-AMP Outstanding Scholar Award – Highest GPA in Engineering Technology Dept., UHD, 2008

Brown Foundation Leadership Award – Scholars Academy, UHD, 2007 & 2008

Hat's Off Award, Society of Fire Protection Engineers Annual Conference, 2007

Outstanding Student – Safety and Fire Engineering Technology, UHD, 2006 & 2007

Louis Stokes Alliance Minority Participation Scholarship, National Science Foundation, 2006

Red Rose Scholarship, UHD, 2006

Rookie of the Year, Klein Fire Department, 2002

## Volunteerism

Orphanage work, Casa Hogar Douglas; Monterrey, Mexico, January 2007

Community Involvement Day; UHD, September 2006

Ed's Bayou Cleanup; UHD, Spring 2006

Emergency Disaster Preplanning; Loving and Caring Arms Adult Care Facility, March 2006

Tactical Suppression Firefighter, Klein Fire Dept. Station 32; Houston, TX, 2002–2005

Fire alarm system upgrades, Sweetwater Christian School; Houston, TX, 2005