# Kristopher J. Overholt

Software Engineer

Continuum Analytics

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## Education

Ph.D. in Civil Engineering, The University of Texas at Austin, 2013

M.S. in Fire Protection Engineering, Worcester Polytechnic Institute, 2010

B.S. in Fire Protection Engineering Technology, University of Houston–Downtown, 2008

## Engineer in Training Certification

Texas Board of Professional Engineers Certified EIT #40629 - September 19, 2008

Completed NCEES Fundamentals of Engineering Exam - April 12, 2008

## Employment and Research Experience

Software Engineer                                                    February 2015–Present

**Continuum Analytics**                                                      *Austin, TX*

Managing cluster computing products that integrate Python with Hadoop and Spark in a data analysis platform. Working with clients as a solution architect for cluster computing and data analysis/engineering workflows. Coordinating with marketing team to create webinars, demonstrations, and sales material. Developing tools/products to manage Python packages across bare-metal and cloud-based clusters. Performing pre-sales activities with customers including product demonstrations and solution architecting. Developing scientific software as a client-facing consultant.

Fire Protection Engineer                                              May 2012–January 2015

**National Institute of Standards and Technology**                        *Gaithersburg, MD*

Performed fire model verification and validation work for the US Nuclear Regulatory Commission (NRC) related to empirical correlations and Fire Dynamics Simulator (FDS). Worked with the FDS development team on verification and validation, continuous integration testing, and quality metrics. Conducted fire modeling studies to provide insight on the fire development and thermal conditions during firefighter fatality and injury incidents. Conducted bench-scale and full-scale experimental work related to improving firefighter tactics and safety. Developed sensor-based smart firefighting technology.

Graduate Research Assistant                                           January 2010–May 2013

**The University of Texas at Austin**                                        *Austin, TX*

Research assistant on issues related to fire modeling, inverse fire modeling problems, fire suppression systems in nuclear gloveboxes, firefighter line of duty injuries/deaths, wildland fire experiments and modeling, and positive pressure ventilation experiments and simulations.

Graduate Student Researcher                                      May 2011–August 2011

**Southwest Research Institute**                                      *San Antonio, TX*

Performed data analysis on the project: Reducing Uncertainty of Quantifying the Burning Rate of
Upholstered Furniture. Fire modeling and data analysis work for full-scale upholstered furniture fire
experiments sponsored by the National Institute of Justice (NIJ). Developed fire model simulations
and guidance for the forensic investigation of fire incidents involving upholstered furniture.

Adjunct Faculty                                                   August 2010–May 2011

**University of Houston–Downtown**                                       *Houston, TX*

Instructor for fire protection engineering courses including Fire Dynamics, Fire Modeling, Structural
Fire Safety, and Advanced Problems in Fire and Safety in the Fire Protection Engineering Technology
program.

Research Assistant and Teaching Assistant                    August 2008–December 2009

**Worcester Polytechnic Institute**                                     *Worcester, MA*

Teaching assistant to graduate level courses in the Department of Fire Protection Engineering.
Research assistant in the fire science laboratory for small-scale commodity tests, including the cone
calorimeter. Experimental determination of a mass transfer number to assess the flammability
hazard and ranking of storage commodities for warehouse fire protection. The goal was to better
classify and protect commodity storage in warehouse facilities and predict upward flame spread rates
in warehouse fires.

Summer Undergraduate Research Fellowship                         May 2007–August 2007

**National Institute of Standards and Technology**                    *Gaithersburg, MD*

Performed fire model verification and validation study of intermediate–scale cable fire experiments
conducted by the Nuclear Regulatory Commission (NRC) related to the Thermally-Induced Elec-
trical Failure (THIEF) Model in Fire Dynamics Simulator (FDS). Contributed to the FDS User's
Guide and Verification & Validation Guides.

Undergraduate Researcher                                         August 2007–May 2008

**University of Houston–Downtown**                                       *Houston, TX*

Performed fire model validation study for small-scale pool fire experiments. The measured mass loss
rates of small-scale ethanol pools were compared to predicted mass loss rates using the FDS fuel
droplet sub-model to simulate the burning of liquid fuels. Additional work was performed related
to fire simulations of smoke spread, sprinkler activation, and structural integrity in large atriums.

Fire Alarm Technician and IT Administrator                       May 2000–August 2006

**OMNI Fire & Security Systems**                                        *Houston, TX*

Field technician work including servicing, inspecting, and troubleshooting residential and commer-
cial security alarms, fire alarm systems, remote camera systems, and access control systems. IT
administrator and website manager for small business network. Developed various technical train-
ing courses.

## Skills and Coursework

| | |
|---|---|
| Hadoop Configuration and Administration | Spark / PySpark Data Analysis |
| Mac OS X / Linux / Windows | Cloud Infrastructure / AWS |
| Python / NumPy / SciPy / pandas | Parallel and Clustering Technologies |
| Fortran / C++ | Development Operations and Config. Mgmt. |
| matplotlib / Bokeh | Solution Architecting / Requirements Gathering |
| Django / Flask / WordPress | Data Analytics Platforms |
| Matlab | Small-Scale and Large-Scale Fire Experiments |
| LabVIEW | NIST Fire Dynamics Simulator |
| Scientific / Technical Copy Editing | CFAST / BRANZFIRE Zone Models |
| Scientific / High-Performance Computing | Performance-Based Design |
| Scientific Visualization & Data Analysis | Fire Dynamics |
| Instrumentation and Data Collection | Fire Alarm Signaling Systems |
| LaTeX | Structural Design for Fire Safety |
| Computational Fluid Dynamics | Fire Safety and Hazard Recognition |
| Engineering Mechanics | Building Fire Safety |
| Heat Transfer | Automatic Fire Suppression |
| Combustion | Industrial Safety |
| Thermodynamics | Fire Modeling |
| Differential Equations | HVAC Design |
| Incompressible Flow | Indoor Air Quality: Transport and Control |
| Fluid Mechanics | Human Factors in Fire Safety |
| Numerical Methods | Human Exposure to Indoor Air Pollution |

## Memberships

Member, Society of Fire Protection Engineers, 2004–2015

Member, National Fire Protection Association, 2014–2015

Member, International Association for Fire Safety Science, 2011–2015

President, SFPE UT Student Chapter, 2010–2012

President, SFPE WPI Student Chapter, 2009

Founding President, SFPE UHD Student Chapter, 2007

## Honors and Awards

Best Thesis Award "Excellence in Research", International Association for Fire Safety Science, 2014

Harry C. Bigglestone Award for Excellence in Communication of Fire Protection Concepts, Fire Technology, National Fire Protection Association, 2013

Honorable Mention, NSF Graduate Research Fellowship, 2009 & 2010

2nd 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

Webmaster, North Austin Civic Association; Austin, TX, 2010–2013

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