

Colin H. Miller

University of Maryland Department of Fire Protection Engineering
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Education

University of Maryland, College Park

Ph.D., Mechanical Engineering, 4.0 GPA

Expected: May 2017

Thesis: In progress

Advisor: Dr. Michael J. Gollner

M.S., Fire Protection Engineering, 4.0 GPA

August 2014

Thesis: Upward Flame Spread over Discrete Fuels

Advisor: Dr. Michael J. Gollner

B.S., Fire Protection Engineering

May 2013

Minor, Philosophy

May 2013

Employment

Graduate Research Assistant

August 2013 – Present

University of Maryland

College Park, MD

Working as research assistant on projects concerning fundamental processes of wildland fire spread, boundary layer instabilities, and discrete flame spread. Work regularly involves design of novel experimental setups, literature review, and significant data analysis.

Teaching assistant for “Wildland Fires: Science and Applications”. Assistance provided for undergraduate research projects and department outreach.

Engineering Intern

September 2012 – August 2013

Combustion Science & Engineering, Inc.

Columbia, MD

Generated FDS models of flame propagation across a buoyant, upper layer of gas to analyze an historic fire. Designed, programmed, and built self-heating experiments and DAQ systems with LabVIEW infrastructure. Reviewed and validated proposed revisions to Purser’s chapter of the SFPE handbook. Performed experiments, reviewed legal documents, and conducted research for fire investigations.

Intern/Design Technician

May 2012 – August 2012

Codex Engineering

Bethesda, MD

Assisted in developing solutions for a non-compliant fire suppression system. Reviewed cut sheets, evaluated code compliance, drafted review letters and recommendations for clients, and assisted in proposal formulation. Researched procurement sites to retrieve business opportunities. Collected data on historical procurements and identified trends.

Intern

July 2012 – August 2012

O’Connor Construction Management

Washington, D.C.

Retrieved solicitations, extracted capital plans, and established database of opportunities.

Pool Operator/Lifeguard

May 2008 – August 2012

Research Interests

- Fluid mechanics, particularly boundary layer phenomena and scaling
- Computational modeling of thermal/fluid systems, particularly CFD development/validation/verification
- Fire science including fire dynamics, fire modeling, forensics, ignition, flame spread, smoke transport
- Wildland fires, particularly fluid dynamics, atmospheric interactions, flame spread modeling
- Combustion phenomena, particularly explosions, boundary layer combustion
- Psychological and sociological behavior, including egress and crowd dynamics/modeling

Publications

1. Miller, C.H., Gollner, M.J., Upward flame spread over discrete fuels, Fire Safety Journal, Volume 77, October 2015, Pages 36-45. ([Link](#))
2. Miller, C.H., Upward Flame Spread over Discrete Fuels. Thesis. University of Maryland, College Park, 2014. Digital Repository at the University of Maryland, UMD Theses and Dissertations. ([Link](#))

Conference Proceedings

1. Miller, C.H., Gollner, M.J., Finney, M.A., Gorham, D.J., An Investigation of Wildfire Dynamics via Inclined Burners, 9th U.S. National Combustion Meeting, Cincinnati, OH, 2015.
2. Miller, C.H., Gollner, M.J., Upward Flame Spread over Discrete Fuels, 9th U.S. National Combustion Meeting, Cincinnati, OH, 2015.

Conference Presentations

1. Miller, C.H., Verma, S., Trouve, A., Finney, M., Forthofer, J., McAllister, S., Gollner, M.J., An Investigation of Hydrodynamic Instabilities in Wind-Driven Flames, American Physical Society's 68th Annual Division of Fluid Dynamics Meeting, Boston, MA, November 22-24, 2015.
2. Miller, C.H., Verma, S., Trouve, A., Gollner, M.J., A Fundamental Exploration of Flame Structure in Wildland Fires, AFE 6th International Fire Ecology and Management Congress, San Antonio, TX, November 16-20, 2015.
3. Miller, C.H., Gollner, M.J., Finney, M.A., Gorham, D.J., An Investigation of Wildfire Dynamics via Inclined Burners, 9th U.S. National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.
4. Miller, C.H., Gollner, M.J., Upward Flame Spread over Discrete Fuels, 9th U.S. National Combustion Meeting, Cincinnati, OH, May 17-20, 2015.

Other Presentations

Posters

1. Tang, W., Miller, C.H., Gorham, D.J., Gollner, M.J., Scale Modeling of Wildland Fires Using Stationary Fires, Operation Tomodachi – Fire Research, March 17, 2015.
2. Miller, C.H., Tang, W., Gorham, D.J., Gollner, M.J., Understanding the Dynamics of Wildland Fire Spread, University of Maryland MPACT Event on Multi-Hazard Resilience, October 22, 2014.

Technical Skills

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| CFD | LaTeX |
| MATLAB | LabVIEW |
| VBA | Python |
| FDS | Java |
| CONTAM | CFAST |
| Microsoft Office | Adobe Premiere and general videography |
| Engineer-in-training | Passed Qualifying Exam |

Volunteer Work

Young Adult Group Co-Leader August 2014 – Present
Holy Redeemer Catholic Church College Park, MD
Established new ministry group for young adults at local parish. Develop weekly faith-based studies and coordinate occasional social events.

Youth Group Volunteer June 2014 – Present
Holy Redeemer Catholic Church College Park, MD
Helped to restart dormant ministry at local parish. Assist in planning and coordinating events and multi-day retreats for local teenagers. Chaperone events and mentor youth.

Kitchen Volunteer June 2013 – Present
Christ House Washington, D.C.
Weekly kitchen volunteer at medical facility for the homeless.

Bible Study Leader/ Retreat Leader/ Advocacy Chair/ Volunteer August 2010 – Present
Catholic Student Center College Park, MD
Occasionally give talks to encourage undergraduates in their spiritual development. Led weekly faith-based study to encourage and challenge college males from 2010-2014. Conceptualized logistics for faith-based advocacy causes and events from 2012-2013. Volunteer in community service events.

Activities, Programs, Memberships, & Certifications

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| Member (2012-present) | Society of Fire Protection Engineers |
| Member (2011-present) | Salamander Fire Protection Honor Society, UMD Chapter |
| Secretary (2012-2013) | Salamander Fire Protection Honor Society, UMD Chapter |
| Member (2015-present) | Combustion Institute, Eastern States Section |

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| Member (2015-present) | American Physical Society |
| Member (2015-present) | Association for Fire Ecology |
| Member (2012-2015) | National Association of Fire Investigators |
| Member (2011-2013) | Engineering World Health |
| Member (2009-2011) | Gymkana |

Honors & Achievements

TREE Student Travel Grant *October 2015*
Competitive grant awarded to help cover travel costs of conferences dealing with wildland fire science and management

John L. Bryan GRA Award *2013*
First student to be awarded the John L. Bryan Graduate Research Assistantship (GRA). The support is provided to outstanding, incoming, Master of Science (MS) students in the UMD Department of Fire Protection Engineering (FPE) and is awarded on a competitive basis.

Salamander Honorary Fire Protection Society Scholarship *July 2012*
Award for outstanding students in fire protection

University Honors Citation *July 2012*
University of Maryland Honors College

Angie M. Houtz Memorial Scholarship *July 2009*
\$3000 scholarship for dedication to both community service and academic achievement

A. James Clark School Scholarship *July 2009*

Dean's Scholarship *July 2009*

Salutatorian *May 2009*
Gonzaga College High School (4.5 GPA)

Eagle Scout *2008*