# AIXI ZHOU, PH.D., P.E.

Vice Provost for Research and Innovation, Office of Research and Innovation Professor of Engineering, Department of Engineering Norfolk State University, Norfolk, Virginia

## LEADERSHIP EXPERIENCE

## Vice Provost for Research and Innovation

Norfolk State University (NSU), Norfolk, Virgina

• Serving as the founding Vice Provost for the Office of Research and Innovation to lead, build, and manage the research enterprise and innovation ecosystem at NSU.

**Chairperson**, Department of Applied Engineering Technology 08/2018 - 05/2024 North Carolina Agricultural and Technical State University (N.C. A&T), Greensboro, North Carolina

 Served as the academic leader and chief administrative officer of the department serving more than 400 students, offering B.S. degrees in Applied Engineering Technology, Automotive Engineering Technology, and Computer Graphics Technology, an M.S. degree in Technology Management, and a Ph.D. degree in Applied Science and Technology.

### Founding Director, DoD ACE Machine Tool Center

North Carolina Agricultural and Technical State University (N.C. A&T), Greensboro, North Carolina

• Led a team to establish a DoD <u>America's Cutting Edge (ACE)</u> regional machine tools workforce development hub and research center. Responsibilities included space planning, procurement of equipment, collaboration with educational and industry partners, recruitment of staff and students, advising graduate students conducting research in advanced manufacturing, and planning and delivery of on-site hands-on training bootcamps.

# ACADEMIC POSITIONS

Norfolk State University (NSU), Norfolk, Virginia
Professor, 06/2024 - present
Department of Engineering
North Carolina A&T State University (N.C. A&T), Greensboro, North Carolina
Professor, 08/2018 - 05/2024
Department of Applied Engineering Technology
University of North Carolina at Charlotte (UNC Charlotte), Charlotte, North Carolina
Professor, 7/2018; Associate Professor, 7/2013-6/2018; Assistant Professor, 8/2007-6/2013
Department of Engineering Technology and Construction Management (ETCM)
Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, Virginia
Research Associate, 2006-2007; Graduate Research Assistant, 2000-2002
Department of Engineering Science and Mechanics (now Biomedical Engineering and Mechanics)
École Polytechnique Fédérale de Lausanne (EPFL), Lausanne, Switzerland
Lecturer and Research Scientist, 2003-2006
School of Architecture, Civil and Environmental Engineering
University of California at San Diego (UCSD), La Jolla, California
Research Associate, 2002-2003
Department of Structural Engineering

06/2024 - present

04/2022 - 05/2024

Page 1 of 5

## **INDUSTRY EXPERIENCE**

- 06/2023-Present, **Founder/President**, Zhou Technical LLC, providing consulting service in fire protection.
- 8/2013-5/2023, **Independent Consultant** providing services as a licensed professional engineer for projects that require special fire engineering considerations.

# **EDUCATION**

Ph.D., 2002	Engineering Mechanics (Solid
	Mechanics)
M.Eng., 1999	Mechanical Engineering
	(Manufacturing and Automation)
B.Eng., 1996	Mechanical Engineering
	(Mechanical Design and
	Manufacturing)

Virginia Polytechnic Institute and State University (Virginia Tech), Blacksburg, Virginia Lanzhou University of Technology, Lanzhou, China (Former Gansu University of Technology) Shenyang Aerospace University, Shenyang, China (Former Shenyang Institute of Aeronautical Engineering)

# **RESEARCH AND SCHOLARSHIP**

#### **Funded Projects**

Dr. Aixi Zhou has been the Principal Investigator (PI) or co-PI for more than 26 funded projects, with a total funding amount of about \$9M. Some selected projects are listed in the Funding section of his Open Researcher and Contributor ID link at <a href="https://orcid.org/0000-0003-4425-4400">https://orcid.org/0000-0003-4425-4400</a>.

### Publications

Dr. Aixi Zhou is the author/co-author of 3 books, 4 book chapters, 2 data archives, and more than 100 articles. His Google Scholar Link is <u>https://scholar.google.com/citations?user=eFs5vRMAAAAJ&hl=en</u>

### **Books**

- <u>Zhou A</u> (2023) *Applied Engineering Experiments*, 2<sup>nd</sup> *Edition*. Kendall Hunt Publishing Company, Dubuque, Iowa. ISBN 9798765777954, URL: <u>https://he.kendallhunt.com/product/applied-engineering-experiments</u>. (First Edition in 2021, ISBN 987-1-7924-6638-0).
- <u>Zhou A</u> and Watson GJ (2022) *Applied Engineering Design*, Kendall Hunt Publishing Company, Dubuque, Iowa. ISBN: 978-1-7924-9912-8, URL: <u>https://he.kendallhunt.com/product/applied-engineering-design</u>.
- <u>Zhou A</u> (2022) *Advanced Engineering Experiments*. Kendall Hunt Publishing Company, Dubuque, Iowa. ISBN 978-1-7924-8293-9, URL: <u>https://he.kendallhunt.com/product/advanced-engineering-experiments</u>.

## Selected Recent Articles

- Wang Q, Lu A, <u>Zhou A</u>, and Zhao W (2024) Platform for information sharing, prioritization, and aggregation for firefighters and incident command, IEEE Xplore for SoutheastCon 2024, pp. 1632-1637. <u>https://ieeexplore.ieee.org/abstract/document/10500124</u>.
- Jha A and <u>Zhou A</u> (2022) Applying machine learning for firebrand production prediction. *Fire Technology*, 58, 3261-3290. <u>https://doi.org/10.1007/s10694-022-01309-z</u>
- Kadel J, Hedayati F, Quarles SL, <u>Zhou A</u> (2021) Effect of environmental conditions on the dehydration and performance of fire-protective gels. *Fire Technology*, 57: 1241-1257. <u>https://doi.org/10.1007/s10694-020-01045-2</u>

- Hedayati F, Bahrani B, <u>Zhou A</u>, Quarles SL, Gorham D (2019) A framework to facilitate firebrand characterization, *Frontiers in Mechanical Engineering Thermal and Mass Transport*, Vol. 5, Article 43, <u>https://doi.org/10.3389/fmech.2019.00043</u>.
- Hedayati F, Yang W, <u>Zhou A</u> (2018) Effects of moisture content and heating condition on pyrolysis and combustion properties of structural fuels, *Fire and Materials*, 42:741–749. <u>https://doi.org/10.1002/fam.2528</u>.
- Bahrani B, Hemmati V, <u>Zhou A</u>, Quarles S (2018) Effects of natural weathering on the fire properties of intumescent fire retardant coatings, *Fire and Materials*, 42 (4), 413-423. <u>https://doi.org/10.1002/fam.2506</u>.

# TEACHING

## **Program Development and Curriculum Design**

- <u>N.C. A&T</u>: Created three concentrations (Advanced Manufacturing, Construction Management, and Six Sigma) in the M.S. in Technology Management program (AY2020-2021); established the Technology Management concentration in the Ph.D. degree in Applied Science and Technology program (AY2019-2020); established a B.S. in Automotive Engineering Technology program (AY2018-2019).
- <u>UNC Charlotte</u>: Spearheaded the effort to create the B.S. in Fire Protection Engineering Technology concentration (AY2012-2013), and the Master's in Fire Protection and Administration graduate program (AY2011-2012).

## Laboratory and Facility Development

- <u>N.C. A&T</u>: Established a DoD-sponsored multi-million-dollar machine tool center (2022).
- <u>UNC Charlotte</u>: Initiated the effort and secured funding for the Materials Flammability Lab (2015-2017); secured funding, designed and constructed a load frame and a furnace for structural fire testing in the Fire Safety Science and Engineering Laboratory at the Charlotte Fire Training Academy (2007-2009); secured funding and constructed a composite fabrication facility using the Vacuum Assisted Resin Transfer Molding method (2007-2008).

### **University Courses Taught**

- <u>N.C. A&T</u>: Applied Engineering Experiments, Advanced Engineering Experiments, Capstone Project I&II, Applied Machine Learning Modeling, Fire and Combustion Experimentation.
- <u>UNC Charlotte:</u> Fire Dynamics, Fire Modeling, Human Behavior in Fire, Structural Fire Safety, Fire and Building Codes, Structural Fire Safety, Performance-based Fire Safety, Building Fire Safety, Fire Investigation, Fundamentals of Fire Protection, Stress Analysis Laboratory.
- <u>EPFL</u>: Advanced Composites in Engineering Structures.

## **Continuing Education Short Courses Taught**

- Society of Fire Protection Engineers (SFPE), 2017-present
  - Application of Fire Risk Assessment, Principles of Fire Protection Engineering

## ADVISING

### Graduate Students Advised (M.S. or Ph.D. degrees)

In Progress: One Ph.D. student Graduated: Six Ph.D. students, seven M.S. students with research thesis

### Senior Design Projects/Teams Advised

- 2018-2024: Wheeled vehicle attachment for healthcare application; Fire safety in product design; Smart shredder.
- 2007-2018: New design and manufacturing techniques for pipe fittings to reduce corrosion, Thermal fatigue monitoring using networked infrared cameras, Alternative impact limiter designs for used nuclear fuel shipping casks, Remote thermographic applications for monitoring thermal fatigue, Flash thermography for analysis of material defects, Dynamic analysis of composite busbar insulator support posts, Draft furnace control design, Firefighting robot, VTOL aircraft, Fire dampers, Human powered vehicles.

#### **Student Organization Advising**

- Founding Faculty Advisor for the Society of Fire Protection Engineers (SFPE) UNC Charlotte Student Chapter, 2012 to 2018.
- Founding Faculty Advisor for the Society for the Advancement of Material and Process Engineering (SAMPE) UNC Charlotte Student Chapter, 2012-2015.
- Faculty Advisor for Global Leadership Network (formally HIS International) at UNC Charlotte, 2008 to 2018.

# **PROFESSIONAL SERVICE**

- Member of the study committee on the <u>Potential Environmental Effects of Nuclear War</u>, National Academies of Sciences, Engineering and Medicine, 2023 to present.
- Commissioner, Engineering Accreditation Commission (EAC) of ABET, 2021-2024 term.
  - Representing SFPE for EAC business and decision making.
    - Serving as Team Chair to lead EAC accreditation teams for accreditation site visits.
- Member, ASCE/SEI Fire Protection Committee, 2011 to present.
  - Led and coordinated the effort to write Chapter 10 Structural Acceptance Criteria for the ASCE Manual of Practice #138 Structural Fire Engineering <u>https://doi.org/10.1061/9780784415047</u>.
- Member, ASCE Structural Design for Fire Conditions Committee, 2008 to present.
  - Maintain the ASCE/SFPE 29 Standard Calculation Methods for Structural Fire Protection.
- Member, SFPE Standing Committee on Research, Tools and Methods, 2016 to present.
  - o SFPE Research Roadmap: Developed a roadmap for research needs for fire protection.
  - SFPE Handbook: Working on the plans for the SFPE Handbook for Fire Protection Engineering.
- Associate Editor and Editorial Advisory Board Member, the International Handbook of FRP Composites in Civil Engineering, CRC Press, 2013.
  - Planned and co-edited the handbook with the Editor, particularly responsible for organizing the writing of chapters in Part II All-composite Structures and Components.
- Panelist and Reviewer for several Scientific and Professional Organizations, 2008 to present.
  - o National Science Foundation, Department of Defense, Department of Homeland Security, etc.
- Reviewer for more than 15 scientific journals
- Served in many professional conferences and workshops, five selected events are:
  - 1. General Conference Chair, 2023 ASEE Conference for Industry and Education Collaboration (CIEC 2023), Charleston, SC, February 8-10, 2023.
  - 2. Assistant General Conference Co-Chair, CIEC 2022, Tempe, AZ, February 9-11, 2022.
  - 3. Organizing Committee and Poster Chair, SAMPE Tech, Wichita, Kansas, Oct. 21-24, 2013.
  - 4. Session Chair, Ocean Energy, SAMPE Tech 2012, Charleston, SC, Oct. 22-25, 2012.
  - 5. Session Chair, Nanocomposites, 20120 SAMPE Conference, Baltimore, MD, May 20-24, 2012.

## OUTREACH AND COMMUNITY SERVICE

- 1. US Congress Visit during the 2019 Engineering Technology Leaders Institute (ETLI) Conference (Oct. 10-11, 2019). Visited the offices of NC and SC Representatives and Senators to promote Engineering and Technology education and workforce development.
- 2. Expert commentary for news article "After Grenfell, fires in Dubai's high-rises raise more concerns about building materials", reporter Anna Swartz at Mic Network, August 7, 2017. (<u>https://mic.com/articles/183429/after-grenfell-fires-in-dubais-high-rises-raise-more-concerns-about-building-materials#.FaDERkyos</u>)
- Contribution to article and video "Understanding wildfire spread", for Inside UNC Charlotte and the Office of University Communications, Fall 2017. (<u>https://d.newswise.com/articles/understanding-wildfire-spread</u>)
- 4. Expert consultation and interview with WSOC TV for "Wildfires fan students' smoke-detection project", reporter John Ahrens, May 30, 2017. (<u>http://www.wsoctv.com/news/local/wildfires-fan-students-smoke-detection-project/528023900</u>)
- 5. Contribution to article "Research teams take aim at wildfire spread", UNC Charlotte Magazine, Winter/Spring 2017, 24(1): 8. (<u>https://issuu.com/unc\_charlotte/docs/uncc-q1-2017</u>, page 8)
- Expert consultation and interview with WSOC TV for "Raleigh apartment fire focuses attention on wood construction in Charlotte", reporter Blake Hanson, Mar 20, 2017. (<u>http://www.wsoctv.com/news/local/raleigh-apartment-fire-focuses-attention-on-wood-construction-in-charlotte/504372824</u>)
- 7. Contribution to article "Research teams collaborating to better understand wildfire spread", UNC Charlotte News, January 17, 2017. (<u>http://engr.uncc.edu/news/2017-01-17/research-teams-collaborating-better-understand-wildfire-spread</u>)
- 8. External expert for the Charger Fire team at the Providence Day School (Charlotte, NC) for the 2016-2017 eCYBERMISSION Competition. (The team placed first in both the state and the southeast regional competitions. (http://www.providenceday.org/cf\_news/view.cfm?newsid=1991)
- 9. Contribution to article "Fire safety researcher leads study to reduce wildfires", UNC Charlotte Magazine, Quarter 3, 2015, 22(3): 5.
- 10. Contribution to article "Fire safety researcher leading new study on wind-blown fire embers", NC Charlotte News, August 12, 2015. (<u>https://inside.uncc.edu/news-features/2015-08-11/fire-safety-researcher-leading-new-study-wind-blown-fire-embers</u>)
- Laboratory demonstrations and interview with WSOC TV for "Safety experts say newer construction burns hotter, faster than old", reporter Jenna Deery, Nov 2, 2015. (<a href="http://www.wsoctv.com/news/special-reports/safety-experts-say-newer-construction-burns-hotter/26844424">http://www.wsoctv.com/news/special-reports/safety-experts-say-newer-construction-burns-hotter/26844424</a>)
- 12. Contribution to article "New materials flammability laboratory", UNC Charlotte News, May 30, 2013. (https://engr.uncc.edu/news/2017-09-08/new-materials-flammability-laboratory)

# **PROFESSIONAL MEMBERSHIP**

- Society of Fire Protection Engineers (SFPE)
- American Society for Engineering Education (ASEE)
- International Association for Fire Safety Science (IAFSS, Lifetime Member)

## HONORS AND AWARDS

- SFPE Fellow, 2020.
- ASCE ExCEEd (Excellence in Civil Engineering Education) Fellow, 2010.