

EDUCATION

Northeastern University (NEU)

Boston, MA

Ph.D. Candidate (Structural Engineering) - GPA: 3.72

Sept. 2016 – Present

University of Massachusetts Lowell (UML)

Lowell, MA

M.S. in Civil and Environmental Engineering (Structural Engineering) - GPA: 4.00

Sept. 2015 – May 2016

B.S. in Civil and Environmental Engineering - GPA: 3.98

Sept. 2011 – May 2015

PROFESSIONAL AND RESEARCH EXPERIENCE

Northeastern University

Boston, MA

Structural Engineering Graduate Research Assistant

Sept. 2016 - Present

- Developed a performance-based engineering framework for the analysis of vertical structures subjected to non-stationary wind loads from thunderstorm downbursts and tornadoes
- Conducted wind tunnel experiments to physically simulate non-stationary wind outflows and their effects on a tall building model using a high frequency force balance
- Applying data science techniques to approximate structural responses and fragilities

Structural Engineering Graduate Teaching Assistant

4 semesters from Sept. 2017 - May 2019

- Provided assistance for Steel Design and for Materials and Measurements courses. Graded homework and lab reports, led lectures and labs, and held office hours for students

GCP Applied Technologies

Cambridge, MA

Research Intern

Jun. 2016 - Aug. 2016

- Performed image analysis and data clustering techniques for the improvement of quality control for concrete mixes and the mitigation of the environmental impact of concrete production

University of Massachusetts Lowell

Lowell, MA

Structural Engineering Research Assistant

May 2013 - May 2016

- Involved in the multiphysical nondestructive evaluation of cementitious composites using microwave imaging radar, ultrasonic testing, dielectric measurements with a contact probe, and an unmanned aerial vehicle

Geoenvironmental Engineering Undergraduate Research Assistant

May 2012 - Sept. 2012

- Worked in a multi-disciplinary research group for novel technology in geoenvironmental site characterization

SOFTWARE SKILLS

• **Proficient/Working Knowledge:** MATLAB, Microsoft Office, Python, LaTeX

• **Basic Knowledge:** ANSYS Fluent, OpenFOAM, AutoCAD, C++, LabView

AWARDS AND HONORS

Graduate

- **NEU** - College of Engineering PhD Bridge Funding Fellowship *Mar. 2019*
- **NEU** - College of Engineering Dean's Fellowship *May 2016*
- **American Concrete Institute** - Kumar Mehta Scholarship *May 2016*
- **UML** - Deans Gold Medal - Highest Achievement *May 2016*
- **U.S. Department of Energy** - Integrated University Program Fellowship *May 2015*

Undergraduate

- **UML** - Chancellors Medal for Distinguished Academic Achievement in Engineering *May 2015*
- **American Society for Nondestructive Testing** - Engineering Undergraduate Award *May 2014*
- **UML** - William Haskell Award for Outstanding Junior *May 2014*
- **UML** - Herman J. Shea Award for Outstanding Sophomore *May 2013*

COMMUNITY OUTREACH

Northeastern University Graduate Structural Engineering Association (NGSEA) Boston, MA

Chair *Sept. 2018 - Sept. 2019*

- Organized student and professional seminars for graduate structural engineering students
- Arranged “Documentary Nights” centered on the role and ethical responsibilities of civil engineers in society
- Attended the 2018 SEI Local Leaders Conference (LLC) hosted by ASCE

1st Northeastern University - Tongji University Workshop on Wind Engineering (NU-TJU WWE1) Boston, MA

Co-Chair *May 2019*

- Co-led a student organized workshop to discuss the latest developments in wind engineering research made by academics from Northeastern University and Tongji University

Tau Beta Pi Engineering Honors Society (UML - MA Theta) Lowell, MA

President *Mar. 2014 - Mar. 2015*

- Organized “Academic Advising Sessions” for upperclassmen to provide advice to the underclassmen peers on course planning
- Organized professional seminars for undergraduate engineering students

UMass Lowell Vietnamese Student Association (UML VSA) Lowell, MA

President/Vice President *May 2013 - May 2015*

- Organized gatherings with undergraduate students to celebrate Vietnamese culture

Red Lotus Lion Dance Troupe Lowell, MA

Co-captain/Member *Nov. 2013 - May 2017*

- Performed traditional “lion dance” for holidays throughout the lunar calendar and special celebratory events

American Society of Civil Engineers (UML Student Chapter) Lowell, MA

Social Chair *Sept. 2012 - Jan. 2013*

- Assisted with advertisement of the chapter’s activities

Chi Epsilon - The Civil Engineering Honor Society (UML Chapter) Lowell, MA

Student Member *Jan. 2013 - May 2015*

LANGUAGES

Native/Proficient:: English **Intermediate:** Vietnamese **Elementary:** Spanish

Peer-Reviewed Journal Publications

First Author

- Le, V.; Caracoglia, L. (2019). “Life-cycle cost analysis of a point-like structure subjected to tornadic wind loads.” *ASCE Journal of Structural Engineering*. In Press.
- Le, V.; Caracoglia, L. (2019). “Generation and characterization of a non-stationary flow field in a small-scale wind tunnel using a multi-blade flow device.” *Journal of Wind Engineering and Industrial Aerodynamics*. 186: 1-16.
- Le, V.; Caracoglia, L. (2018). “Computationally efficient stochastic approach for the fragility analysis of vertical structures subjected to thunderstorm downburst winds.” *Engineering Structures*. 165: 152-169.

Co-Author

- Yu, T.; Twumasi, J.O.; Le, V.; Tang, Q.; D’Amico, N. (2017). “Surface and subsurface remote sensing of concrete structures using synthetic aperture radar imaging.” *ASCE Journal of Structural Engineering*. 143 (10): 04017143.

Conference Papers and Presentations

First Author

- Le, V.; Caracoglia, L. (2019). “Performance-based design of vertical structures impacted by thunderstorm downburst and tornado wind loads by wavelet-Galerkin approach.” Presented at: *1st Northeastern University - Tongji University Workshop on Wind Engineering (NU-TJU WWE1)*, May 23, 2019, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2018). “Performance-based assessment of tall buildings subjected to thunderstorm downburst loads using the Wavelet-Galerkin approach.” Presented at: *Engineering Mechanics Institute (EMI) Conference 2018*, Massachusetts Institute of Technology, Cambridge, MA, USA.
- Le, V.; Caracoglia, L. (2017). “A preliminary examination of structural fragility for a vertical cantilever structure subjected to thunderstorm downburst loading.” Full paper presented and found in: *Proceedings of the 13th Americas Conference on Wind Engineering (ACWE13)*, University of Florida, Gainesville, Florida, USA.
- Le, V.; Yu, T.; Twumasi, J.O.; Tang, Q. (2016). “Sizing and ranging criteria for SAR images of steel and wood specimens.” Full paper presented and found in: *2016 SPIE Proceedings Vol. 9804: Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, and Civil Infrastructure*, Las Vegas, Nevada, USA.
- Le, V.; Yu, T. (2015). “Mass and stiffness estimation using mobile devices for structural health monitoring.” Full paper presented and found in: *2015 SPIE Proceedings Vol. 9437: Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, and Civil Infrastructure*, San Diego, California, USA.

Co-Author

- Twumasi, J.O.; Le, V.; Tang, Q.; Yu, T. (2016). “Quantitative sensing of corroded steel rebar embedded in cement mortar specimens using ultrasonic testing.” Full paper presented and found in: *2016 SPIE Proceedings Vol. 9804: Nondestructive Characterization and Monitoring of Advanced Materials, Aerospace, and Civil Infrastructure*, Las Vegas, Nevada, USA.
- Qin, Y.; Twumasi, J.O.; Le, V.; Ren, Y.-J.; Lai, C.P.; Yu, T. (2016). “Roadside IED detection using subsurface imaging radar and rotary UAV.” Full paper presented and found in: *2016 SPIE Proceedings Vol. 9823: Detection and Sensing of Mines, Explosive Objects, and Obscured Targets XXI*, Baltimore, Maryland, USA.

Poster Presentations

- Le, V.; Caracoglia, L. (2019). “Performance-based framework for the evaluation of non-stationary wind loads on vertical structures.” Poster presented at: *Northeastern University 9th Annual Civil & Environmental Engineering Industry Leadership Night*, October 29, 2019, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2019). “Analytical methodology for the performance-based assessment of vertical structures impacted by thunderstorm downburst and tornado wind loads.” Poster presented at: *2019 Research, Innovation and Scholarship Expo (RISE: 2019)*, April 4, 2019, Northeastern University, Boston, MA, USA.

- Le, V.; Caracoglia, L. (2019). “Machine learning algorithms for performance-based tornado engineering in the MATLAB[®] computing environment.” Poster presented at: *2019 MathWorks SMART Laboratory Northeastern University Collaboration Day Event*, February 26, 2019, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2019). “Performance-based structural design against thunderstorm and tornadic loads: Recent numerical and experimental developments.” Poster presented at: *2019 Northeastern University College of Engineering PhD Research Expo*, February 21, 2019, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2018). “Performance-based engineering framework for vertical structures subjected to non-stationary wind loads.” Poster presented at: *Northeastern University 8th Annual Civil & Environmental Engineering Industry Leadership Night*, November 28, 2018, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2018). “Investigations on the structural performance of building structures subjected to non-stationary thunderstorm wind loads by wavelet-Galerkin numerical methods.” Poster presented at: *2018 Research, Innovation and Scholarship Expo (RISE: 2018)*, April 6, 2018, Northeastern University, Boston, MA, USA.
- Le, V.; Caracoglia, L. (2018). “A MATLAB[®]-based numerical algorithm for stochastic simulation of structural load, response and damage (MATLAB[®] SLRD) induced by non-stationary thunderstorm downbursts. Poster presented at: *2018 MathWorks SMART Laboratory Northeastern University Collaboration Day Event*, Mar. 12, 2018, Northeastern University, Boston, MA, USA.

Thesis/Dissertation

- Le, V. “Detecting and quantification of damage from ASR gels using multiphysical nondestructive evaluation.” MS Thesis, University of Massachusetts Lowell, 2016 (155 pages).
- Le, V. “Performance-based engineering framework for vertical structures subjected to nonstationary wind loads.” PhD Dissertation, Northeastern University, 2020 (*In progress*).