

# Viet Le

Ph.D. Candidate, Northeastern University

Email: [vqle21@gmail.com](mailto:vqle21@gmail.com)

Website: <https://vqle21.github.io>

## EDUCATION

### Northeastern University (NU)

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

Boston, MA

Sept. 2016 – Present

### University of Massachusetts Lowell (UML)

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

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

Lowell, MA

Sept. 2015 – May 2016

Sept. 2011 – May 2015

## PROFESSIONAL AND RESEARCH EXPERIENCE

### Northeastern University

Structural Engineering Graduate Research Assistant

Boston, MA

Sept. 2016 - Present

- Developing a performance-based engineering framework for the risk and life-cycle cost assessment of vertical structures subjected to non-stationary wind loads from thunderstorm downbursts and tornadoes
- Conducting 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

Sept. 2017 - May 2020

- 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

Research Intern

Cambridge, MA

Jun. 2016 - Aug. 2016

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

### University of Massachusetts Lowell

Structural Engineering Research Assistant

Lowell, MA

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

## SOFTWARE SKILLS

- **Proficient/Working Knowledge:** MATLAB, Microsoft Office, Python, LaTeX
- **Basic Knowledge:** ANSYS Fluent, OpenFOAM, AutoCAD, C++, LabView

## AWARDS AND HONORS

### Graduate

- **NU** - College of Engineering PhD Bridge Funding Fellowship Mar. 2019
- **NU** - 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

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### **Northeastern University Graduate Structural Engineering Association**

Boston, MA

*Chair*

*Sept. 2018 - Sept. 2019*

- Recognized by the ASCE Structural Engineering Institute (SEI) as 2020 Graduate Student Chapter of the Year
- 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

### **1<sup>st</sup> Northeastern University - Tongji University Workshop on Wind Engineering**

Boston, MA

*Co-Chair, PhD Network Dissertation Research Grant*

*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

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**Native/Proficient::** English

**Intermediate:** Vietnamese

**Elementary:** Spanish

## Peer-Reviewed Journal Publications

### First Author

- Le, V.; Caracoglia, L. (2020). “Experimental investigation of non-stationary wind loading effects generated with a multi-blade flow device” *Journal of Fluids and Structures*. (Submitted for review).
- Le, V.; Caracoglia, L. (2020). “A neural network surrogate model for the performance assessment of a vertical structure subjected to non-stationary, tornadic wind loads.” *Computers & Structures*. 231: 106208.
- Le, V.; Caracoglia, L. (2020). “Life-cycle cost analysis of a point-like structure subjected to tornadic wind loads.” *ASCE Journal of Structural Engineering*. 146 (2): 04019194.
- 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. (2020). “Investigating failure probability of a point-like, monopole structure subjected to tornado winds.” Submitted to: *9<sup>th</sup> International Colloquium on Bluff Body Aerodynamics and Applications (BBAAIX)*, July 20-23, 2020, University of Birmingham, Birmingham, United Kingdom.
- 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: *1<sup>st</sup> 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 13<sup>th</sup> 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 9<sup>th</sup> 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<sup>®</sup> 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 8<sup>th</sup> 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<sup>®</sup>-based numerical algorithm for stochastic simulation of structural load, response and damage (MATLAB<sup>®</sup> 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.” M.S. Thesis, University of Massachusetts Lowell, 2016 (155 pages).
- Le, V. “Performance-based engineering framework for vertical structures subjected to non-stationary wind loads.” Ph.D. Dissertation, Northeastern University, 2020 (*In progress*).