

Example CV

From an anonymous graduate student, inquiring about research positions. Only page 1 of the file is shown.

Original version

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Summary

Ph.D. candidate in Structural Engineering at Northern Lakes Institute of Technology specializing in urban and regional risk and resilience analysis under natural hazards. Experienced in probabilistic hazard modeling, infrastructure fragility and recovery modeling, and large-scale resilience assessment of interconnected systems. Proficient in MATLAB and Python for geospatial and risk-based analysis, with experience collaborating with national laboratories and industry partners.

Education

Northern Lakes Institute of Technology, Ph.D. in Structural Engineering, 3.54/4 (Duluth, MN) Aug. 2021- April. 2026 (expected)

Relevant courses: Structural dynamics, Optimization methods in Civil Engineering, Advanced data mining, Railroad Engineering, Reliability Analysis

Aegean Technical University, M.S in Geotechnical Engineering, 3.86/4 (Thessaloniki, Greece) Aug. 2018- Feb. 2021

Relevant courses: Advanced foundation engineering, Continuum mechanics, Field investigations, Ground improvement, Advanced soil mechanics

University of Larissa, B.S in Civil Engineering, 3.2/4 (Thessaly, Greece) Aug. 2014- Aug. 2018

Relevant courses: Mechanics of materials, statics, structural analysis, Foundation design, Concrete design, Steel design

Technical Experience

Graduate Research Assistant

Northern Lakes Institute of Technology, Duluth, MN

Aug. 2021-Current

- Developed **age-dependent fragility models**, using **Monte Carlo simulations** and **ANN surrogate models** for wood and prestressed concrete (PC) poles using ASTM, ACI, ASCE 7, and ANSI O5.1 design criteria, achieving up to **35x faster** reliability assessment across **10,000 synthetic storm scenarios** involving wind, surge, and wave hazards.
- Integrated **life-cycle cost** and **outage-driven loss metrics** with fragility models to estimate direct/indirect socio/economic impact of failures across **~3,500 utility poles**, demonstrating **~70% lifecycle cost reduction** adopting PC poles.
- Developed a **resilience and risk-based decision framework** linking failure probabilities to system downtime and replacement consequences to support optimal infrastructure investment under hurricane hazards.
- Developed **probabilistic storm hazard models**, representing annual exceedance probabilities as a function of 3-sec gust wind speed using **ASCE 7 wind maps** (Gulf Coast) and **synthetic hurricane datasets** (Corpus Christi) as part of an industry collaboration with **Harbor Line Engineering**.
- Performed Reliability Analyses** to estimate life expectancy of wood, PC, ductile iron, galvanized steel, and composite utility poles under **wind loading**, incorporating **P-Delta effects** of attached equipment (transformers/regulators) in an industry-sponsored collaboration with Harbor Line Engineering to support material upgrade decisions.
- Evaluated **foundation failure probability** under hurricane loading using **Hansen's method** for saturated and unsaturated soils, incorporating **P-Delta effects** in an industry-sponsored collaboration with Harbor Line Engineering.
- Developed **graph-analytics-based outage simulation framework** that evaluates power system service loss **1,000x faster** than traditional connectivity-based methods, enabling rapid network resilience assessment across thousands of storm scenarios.
- Built **high-resolution, unstructured hydrodynamic meshes** and input forcing files for **ADCIRC+SWAN** to simulate storm-induced surge and wave hazards across the entire Gulf of Mexico, in collaboration with **Prairie Ridge National Laboratory (PRNL)**.
- Processed ADCIRC+SWAN model outputs (NetCDF) using **ArcGIS Pro** and **DEM terrain data** to estimate inundation depths and assess coastal community exposure under historical and climate-adjusted scenarios (including **RCP 8.5 sea-level rise**).
- Developed **Storm probabilistic model** using **10,000-year synthetic storm dataset** to assess life-expectancy and disruption risk for the coastal railroad corridors between **Corpus Christi, TX and Galveston, TX** as part of a **Federal Railroad Administration (FRA)**-funded Project.

Teaching Experience

Lab Instructor, Soil Mechanics Laboratory

Northern Lakes Institute of Technology, Duluth, MN

Aug. 2022-Dec. 2022

- Led weekly laboratory sessions for undergraduate and graduate civil engineering students.
- Supervised experiments** on soil classification, compaction, and shear strength.
- Mentored students on data analysis and technical reporting.

Technical Skills

Software: AutoCAD, SAFE&ETABS, Tekla Structure, SAP2000, Civil 3D, PLAXIS2D, FLAC2D, Geo Studio, ADCIRC+SWAN, ArcGIS Pro

Programming Language: Python, MATLAB

Presentations

A Probabilistic Surge and Wave Model for Resilience Analysis of Coastal Railroad: 25th Rail Environmental Conference; November 2023; Champaign, IL. (Poster Presentation).

A Life-Cycle Cost Analysis to Determine the Effectiveness of Prestressed Concrete Poles Against Aging and Combined Wind-Surge-Wave Induced Loads: Structural Reliability and Mechanics Conference (SRMC), May 28-31, 2024, Cleveland, OH (oral presentation).

A Computationally Efficient Framework for Accurate Resilience Assessment of Coastal Electric Power Distribution Systems under Hurricane Hazard: Structural Reliability and Mechanics Conference (SRMC), May 28-31, 2025, Tempe, AZ (oral presentation).

Accurate and Efficient Resilience Assessment of Coastal Electric Power Distribution Networks: 14th International Symposium on Risk Analysis and Reliability (ISRAR), June 1-6, San Diego, CA (Speaker).

Honors and Awards

PhD Symposium Fellow and Research Presenter, 2025 Great Lakes Doctoral Symposium on Resilient Infrastructure and the Future of the Building Industry (FoBI) Workshop, May 22-23, 2025

Selected as **one of 15 doctoral students** nationwide to attend and present research at this all-expenses-paid symposium hosted by Lakeshore State University's School of Architectural Engineering and Construction in Milwaukee, WI. Theme: **"AI for Resilient Communities: People, Built Environment, and Adaptation."**

Finalist, Best Student Paper Award – Infrastructure Analysis

14th International Symposium on Risk Analysis and Reliability (ISRAR 2025)

Figure 1 The original CV.

Your observations:

My observations regarding the original figure

- There is too much bold text in the writing. This makes it difficult to read the text, and difficult to identify any important items.
- There is very little white space, which also makes reading difficult.
- There is too much detail on the Technical Experience items. The CV is a place to document positions and roles, not describe the scope of work in detail. These details belong in a cover letter or research statement instead.

Revised version

Adjustments

- The items are spaced out, and most of the bold text is removed, making reading and skimming much easier.
- The amount of detail on some items (e.g., Technical Experience) is reduced.
- Honors and Awards is moved up to earlier in the CV, given that the student has several notable awards.

Petros N. Vasilakis

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EDUCATION

Ph.D., Structural Engineering — Northern Lakes Institute of Technology expected April 2026

Dissertation: Probabilistic risk and resilience assessment of coastal infrastructure under storm hazards

M.S., Geotechnical Engineering — Aegean Technical University 2021

B.S., Civil Engineering — University of Larissa 2018

RESEARCH EXPERIENCE

Graduate Research Assistant — Northern Lakes Institute of Technology 2021–present

Utility pole reliability under coastal hazards (Harbor Line Engineering)

- Developed age-dependent fragility models for wood and prestressed concrete poles, then coupled them with life-cycle cost and outage-loss metrics across 3,500 poles to demonstrate a 70 percent reduction in lifecycle cost.

Coastal surge and wave hazard modeling (Prairie Ridge National Laboratory)

- Built unstructured ADCIRC+SWAN hydrodynamic models across the Gulf of Mexico to estimate inundation depth and community exposure under historical and RCP 8.5 sea-level rise scenarios.

Rail corridor risk (Federal Railroad Administration)

- Estimated storm disruption risk for the Corpus Christi to Galveston corridor using a 10,000-year synthetic storm set and a graph-analytics outage simulation that runs 1,000 times faster than connectivity-based methods.

HONORS AND AWARDS

- Finalist, Best Student Paper in Infrastructure Analysis, ISRAR — 5 of 55 submissions 2025
- Ph.D. Symposium Fellow, Great Lakes Doctoral Symposium — 1 of 15 selected nationally 2025
- Finishing Fellowship, Northern Lakes Institute of Technology 2026

TECHNICAL SKILLS

Programming Python, MATLAB
Hazard and risk ADCIRC+SWAN, ArcGIS Pro, PLAXIS 2D, FLAC 2D, GeoStudio
Structural design SAP2000, ETABS, SAFE, Tekla Structures, AutoCAD, Civil 3D

PUBLICATIONS

Peer-reviewed journal articles

1. Vasilakis, P., A. Kalmar, R. Whitfield, M. Ostrander, and L. Prendergast (2025). Life-cycle cost analysis of prestressed concrete poles subjected to wind, surge, and wave loading. *ASCE Journal of Structural Engineering* 151(7), 04025069.

Conference proceedings

2. Vasilakis, P., A. Kalmar, and R. Whitfield (2025). Accurate and efficient resilience assessment of coastal electric power distribution networks. *International Symposium on Risk Analysis and Reliability*.

Figure 2 The revised CV.