KARL EID

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EDUCATION

Ph.D. in Civil and Environmental Engineering *2018–Present*
University of Illinois at Urbana-Champaign (UIUC)
- Topic: Quantifying the Risk and Resilience of Healthcare Systems Against Earthquakes
- Advisor: Dr. Paolo Gardoni
- Select courses: Teaching and Leadership, Decision and Risk Analysis, Reliability Analysis, Spatial Statistics, Applied Regression and Design, Applied Bayesian Analysis - GPA 3.96/4.0

M.Sc. in Structural Engineering, Mechanics and Materials *2016–2017*
University of California, Berkeley (UCB)
- Focus: Earthquake Engineering
- Select Courses: Dynamics, Nonlinear Structural Analysis, Seismic Reinforced Concrete Design, Seismic Steel and Composite Design, Earthquake Engineering, Probabilistic Seismic Hazard Analysis, Life-Cycle Analysis - GPA 3.96/4.0

B.Eng. in Civil and Environmental Engineering *2012–2016*
American University of Beirut (AUB)
- Select Courses: Numerical Methods in Structural Analysis, Advanced Steel Design, Advanced Concrete Design, Environmentally Responsive Buildings, Lean Construction - GPA 4.0/4.0

TEACHING EXPERIENCE

Graduate Teaching Assistant *Fall 2021*
ENG 598: Teaching and Leadership | In-person
University of Illinois at Urbana-Champaign
- Assisted professors in preparing and administering weekly in-person seminars to train ~200 teaching assistants (TAs) in the College of Engineering
- Coordinated and graded bi-weekly homework and service-learning term projects

Graduate Teaching Assistant *Spring 2021*
CEE 591: Reliability Analysis | Online
University of Illinois at Urbana-Champaign
- Planned and delivered several online lectures on reliability analysis to ~15 MS and PhD students
- Prepared, administered and graded term projects consisting of the development of novel reliability methodology as well as reliability applications
- Gathered informal early feedback via surveys and modified TA course delivery accordingly

Graduate Teaching Assistant *Fall 2020, 2021*
CEE 491: Decision and Risk Analysis | In-Person & Online
University of Illinois at Urbana-Champaign
- Held weekly in-person office hours to assist ~30 senior undergraduate students with conceptual and homework-related questions
- Prepared, administered and graded term projects consisting of risk analysis applications
- Prepared and graded weekly homework, midterms and final exams

Undergraduate Teaching Assistant *Fall 2014, 2015*
CEE 311: Structural Analysis | In-Person
American University of Beirut
- Delivered weekly in-person problem-solving sessions on Structural Analysis to ~30 sophomore undergraduate students each semester
- Introduced the students to SAP 2000 software through a series of three computer lab sessions each semester

RESEARCH EXPERIENCE

Graduate Research Assistant *2018–Present*
Quantifying the Risk and Resilience of Healthcare Systems Against Earthquakes
University of Illinois at Urbana-Champaign
- Modeled communities subjected to earthquakes to quantify the resilience of their healthcare system, identify weaknesses and suggest enhancements
- Developed a physics-based methodology to transform spatial random processes into temporal random processes, and vice-versa, to overcome data scarcity in modeling probabilistic engineering phenomena
- Developed a novel approach to model formulation and selection that leverage existing models when formulating new probabilistic models, to address data scarcity problems in engineering phenomena

Undergraduate Research Assistant *2015–2016*
Understanding Fire Loading on Steel Structures
American University of Beirut
- Assisted in modeling and researching the effects of fire on steel structures under the guidance of Prof. Elie Hantouche

Undergraduate Research Intern *Summer 2015*
Developing Numerical Methods in Geotechnical Earthquake Engineering
University of Illinois at Urbana-Champaign
- Introduced improvements to DEEPSOIL, a geotechnical earthquake engineering software
- Developed a MATLAB code that automates data post-processing and plotting for LS-DYNA

PROFESSIONAL EXPERIENCE

Structural Designer *2017–2018*
Degenkolb Engineers - Oakland, California
- Evaluated and retrofitted existing reinforced concrete hospitals to increase their seismic resilience using ASCE 41 tier 2 procedures
- Designed and detailed a new one-story steel structure to be built inside an existing building while considering potential earthquake pounding effects
- Investigated forensically the excessive spalling of reinforced concrete walls in a tilt-up warehouse facility
- Designed seismic bracing for medical non-structural components in hospitals and pharmacies
- Designed wind and seismic bracing for outdoor and indoor electrical and mechanical systems
- Evaluated existing fire stations' seismic response using ASCE 41 tier 1 checklists

Site Engineer - Intern *Winter 2014*
A.R. Hourie - Beirut, Lebanon
- Assisted engineers in overseeing and managing the construction of a 50-story skyscraper

HONORS & AWARDS

Teaching Awards - Illinois

Outstanding Teaching Assistant *Spring 2020, Fall 2021*
- Awarded by the Center for Innovation in Teaching and Learning at Illinois in recognition of exceptional student feedback

Teacher Ranked as Excellent by his Students *Spring 2020, Fall 2021*
- Awarded by the Center for Innovation in Teaching and Learning at Illinois based on student ratings of instructor

Graduate Teacher Certificate *2020-2021*
- Awarded by the Center for Innovation in Teaching and Learning at Illinois in recognition of participating in a minimum of six hours of teaching development workshops, having an observation of, and reflection on, teaching, and using informal early feedback as well as end-of-semester feedback to improve teaching

Student Awards - Illinois

Early Career and Student Award *2021*
- Awarded by the organizing committee of the 17th World Conference on Earthquake Engineering in recognition of excellent contribution and high academic level

Mavis Future Faculty Fellowship *2020-2021*
- Awarded by the College of Engineering at Illinois to recognize and prepare the next generation of great engineering faculty in teaching, mentoring, and research

Kuehn Fellowship *2018-2019*
- Awarded by the Civil and Environmental Engineering department at Illinois in recognition of excellent academic achievement

Lewis Fellowship *2018-2019*
- Awarded by the Civil and Environmental Engineering - Structures group at Illinois in recognition of excellent academic achievement

Ang Fellowship *2019-2020*
- Awarded by the Civil and Environmental Engineering - Structures group at Illinois in recognition of excellent academic achievement

Student Awards - Beirut

Holcim Award for Best Final Year Project *2016*
- Awarded to the best civil engineering final year project at AUB in recognition of project impact, sustainability, technical rigor and presentation

American University of Beirut – Dean's Honor List *2012–2016*
- Awarded each semester for exceptional academic performance at AUB

Scholarships

Fulbright Student Scholarship *2016–2017*
- Awarded by the United States Department of State in order to pursue graduate studies in the U.S in recognition of high academic and civic potential

Alexis and Anne-Marie Habib Foundation Scholarship *2012–2016*
- Awarded to high school students with exceptional academic and professional potential to pursue their undergraduate degree

PUBLICATIONS

Journal Publications

1. **Eid, K.**, & Gardoni, P. (Under Preparation). Modeling Post-Earthquake Casualty Arrival Rates at Hospitals. *Annals of Emergency Medicine*
2. **Eid, K.**, & Gardoni, P. (Under Review). A General Physics-Based Formulation for Transforming Underlying Spatial and Temporal Stochastic Processes into Stochastic Processes of Interest. *Reliability Engineering and System Safety*
3. **Eid, K.,** Tabandeh, A., Hu, S., & Gardoni, P. (Under Preparation). Developing New Probabilistic Models from Existing Models: A Novel Approach to Model Formulation and Selection. *Earthquake Engineering and Structural Dynamics*

Conference Publications/Presentations

1. **Eid, K.**, & Gardoni, P. (2021). Post-Earthquake Casualty Arrival Rates at Hospitals: State-of-the-art and Novel Formulation. *2021 Earthquake Engineering Research Institute - Annual Meeting*
2. **Eid, K.**, & Gardoni, P. (2020). Modeling Casualty Arrival Rates at Hospitals after Earthquakes. *Proceedings of the 17th World Conference on Earthquake Engineering*
3. **Eid K.**, El Khoury, A., Khalil, J., Musaed, R., & Yazbeck, T. (2016). "Development & Design of St Paul Youth Village." *Proceedings of the 15th Faculty of Engineering and Architecture Student and Alumni Conference (FEASAC)*, Beirut, Lebanon, pp.346-353
4. El Sakka, F., **Eid, K.**, Narciss, T., & Hamzeh, F. (2016). "Integrating Lean into Modular Construction: A Detailed Case Study of Company X." *Proceedings of the 24th Annual Conference of the International Group for Lean Construction (IGLC)*, Boston, USA.

LEADERSHIP & SERVICE

NGO Co-Founder & Board Member *2017–Present*

Ana Khayyak - Roy Hamouche – Lebanon

- Co-Founded Ana Khayyak, a growing Non-Governmental Organization, with currently 40 members, whose goal is to empower and spread love and nonviolence among underserved, abused, and marginalized kids and youth
- Aligned and managed strategic objectives of the NGO as member and secretary general of the Board of Directors
- Trained yearly 10's of members on pedagogy, leadership, child protection, and nonviolent communication components
- Reached out yearly to universities to recruit students to join Ana Khayyak

Student Chapter Graduate Mentor *2016–Present*

Earthquake Engineering Research Institute (EERI) – USA

- Co-led the UC Berkeley chapter's outreach program which raised earthquake awareness in schools through hands-on activities and play
- Mentored University of Illinois undergraduates in designing and building balsa wood structures for national Seismic Design Competitions
- Organized seminars delivered by profession leaders to ~50 students at the University of Illinois
- Joined the National Public Health Working Group, attended monthly meetings, and presented at EERI Annual Meetings
- Assisted the city of Berkeley in seismically evaluating its non-ductile reinforced concrete buildings via sidewalk survey

Executive Member & Trainer *2010–Present*

St. Paul - Charity Mission – Lebanon

- Led more than 20 educational and recreational camps for underprivileged children
- Organized and delivered summer faith formation sessions for 10's of young adults and teenagers on a yearly basis
- Planned and promoted fundraising banquets, dinners and food banks

SKILLS

Languages:	Proficient in English, French and Arabic
Programming Languages:	MATLAB, R, Python, C++, VB.NET
Soft Skills:	Effective Communication (Speaking and Writing), Teamwork, Detail-oriented