Alok A. Deshpande, Ph.D., P.E.

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Google Scholar, ResearchGate

PROFESSIONAL REGISTRATION

Professional Engineer, Michigan, No. 6201068570

EDUCATION

2015 – 2019 Doctor of Philosophy (Ph.D.) in Civil Engineering
University at Buffalo, The State University of New York, Buffalo, NY, USA
Dissertation: A Multiscale Study of Concrete Subjected to Elevated Temperatures

2010 – 2011 Master of Science (M.S.) in Civil Engineering (Structures)
University of Illinois at Urbana-Champaign, Urbana, IL, USA

2006 – 2010 Bachelor of Technology (B.Tech.) in Civil Engineering
College of Engineering, Pune, Maharashtra, India

PROFESSIONAL EXPERIENCE

Aug 2019 – present Project Consultant
Simpson, Gumpertz and Heger, Waltham, MA, USA
- Soil Structure Interaction Finite Element analysis of buried infrastructure
- Failure investigations of glass breakage and excessive deflections
- Analysis and design of thermoplastic pipe fittings for subsurface applications
- Evaluation of a Seismic Category I reinforced concrete structure affected by Alkali-Silica Reaction (ASR)

May 2018 – May 2019 Research Engineer
Structural Engineering and Earthquake Simulation Laboratory (SEESL)
University at Buffalo, The State University of New York, Buffalo, NY, USA
- Seismic qualification testing of ceiling systems and electrical equipment
- Design and execution of experimental tests

Jan 2018 – May 2018 Teaching Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA
- CIE525 (Reinforced Concrete), graduate class of 50

Jan 2016 – Dec 2017 Research Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA

- Seismic behavior of RC walls subjected to elevated temperature
- High performance concretes subjected to high temperatures
- Development of strain-hardening cementitious composites
- Large-scale structural testing and materials testing

Aug 2015 – Dec 2015 Teaching Assistant
University at Buffalo, The State University of New York, Buffalo, NY, USA
- EAS207 (Statics), undergraduate class of 450

Apr 2014 – Jun 2015 Project Officer
Indian Institute of Technology Madras, Chennai, TN, India
- Development of consistent strain-based design of RC components
- Nonlinear static analysis of RC buildings

Jan 2013 – Mar 2014 Design Engineer
LERA Consulting Engineers, Mumbai, MH, India
- Construction administration for high-rise concrete buildings in India
- Site visits and coordination with contractor and client

Jan 2012 – Dec 2012 Design Engineer
Leslie E Robertson Associates, New York, NY, USA
- Construction drawings for high-rise concrete buildings in India
- Schematic design for structural systems

Aug 2011 – Dec 2011 Teaching Assistant
University of Illinois at Urbana-Champaign, Urbana, IL, USA
- CEE470 (Structural Analysis), graduate class of 80

May 2011 – Aug 2011 Design Intern
Leslie E Robertson Associates, New York, NY, USA
- Construction drawings and schematic design
- Site visits

AWARDS AND HONORS

Apr 2018 Finalist at the 2018 University at Buffalo 3-Minute Thesis Competition
https://www.youtube.com/watch?v=XlXjSPivGLY
Dec 2016 $2,500 Structural Engineers Foundation Research Grant for 2016-2017
Dec 2010 Gold Medal from *Alumni Association of College of Engineering, Pune*
Jun 2010 Gold Medal from *Dept. of Civil Engineering, College of Engineering, Pune*

PUBLICATIONS

Refereed Journal Articles

J1. **Deshpande, A. A.**, Kumar, D., and Ranade, R. "Influence of high temperatures on the residual mechanical properties of a hybrid fiber-reinforced strain-hardening cementitious composite," *Construction and Building Materials*, Vol. 208, pp. 283-395, May 2019, https://doi.org/10.1016/j.conbuildmat.2019.02.129.

J2. **Deshpande, A. A.**, and Whittaker, A. S. "Seismic behavior of reinforced concrete walls at elevated temperature," *ACI Structural Journal*, Vol. 116 (5), pp. 113-124, September 2019.

J3. Kumar, D., **Deshpande, A. A.**, and Ranade, R., "Influence of Fibre Length on the Mechanical Behavior of Steel-PVA Hybrid Fibre-Reinforced Strain-Hardening Cementitious Composites at High Temperatures," *Indian Concrete Journal*, Vol. 93 (12), pp. 30-38, December 2019.

J4. **Deshpande, A. A.**, Kumar, D. and Ranade, R. "Temperature effects on the bond behavior between deformed steel reinforcing bars and hybrid fiber-reinforced strain-hardening cementitious composite," *Construction and Building Materials*, Vol. 233, pp. 117337, February 2020, https://doi.org/10.1016/j.conbuildmat.2019.117337.

J5. Mehrabi. R, Atefi-Monfared K., Kumar D., **Deshpande A.A.** and Ranade R. "Thermo-mechanical assessment of heated bridge deck under internal cyclic thermal loading from various heating elements: pipe, cable, rebar," *Journal of Cold Regions Science and Technology*, *in review*, January 2021.

Refereed Conference Proceedings and Manuscripts

C1. **Deshpande, A. A.**, Kumar, D., Mourougassamy, A. and Ranade, R. "Development of a Steel-PVA Hybrid Fiber SHCC," *Proceedings of 4th International RILEM Conference on SHCC*, Dresden, Germany, 18-20 September 2017.

C2. Kumar, D., **Deshpande, A. A.**, and Ranade, R. "Effects of elevated temperatures on residual bond strength of steel rebar with strain hardening cementitious composite," *3rd R N Raikar Memorial International Conference and Gettu-Kodur International Symposium on Advances in Science and Technology of Concrete*, Mumbai, India, 14-15 December 2018.

C3. **Deshpande, A. A.**, and Whittaker, A. S. "Effects of elevated temperatures on the seismic behavior of reinforced concrete walls," *25th International Conference on Structural Mechanics in Reactor Technology (SMiRT25)*, Raleigh, North Carolina, 4-9 August 2019.

C4. **Deshpande, A. A.**, Kumar, D., Ranade, R. and Whittaker, A. S. "Advanced concretes for high temperature applications," *International Association for Bridge and Structural Engineering (IABSE) Congress*, New York City, New York, 4-6 September 2019.

Technical Reports

R1. **Deshpande, A. A.**, and Whittaker, A. S. "An experimental study of the response of squat reinforced concrete shear walls subjected to combined thermal and seismic loading," *https://www.researchgate.net/publication/322919290_An_experimental_study_of_the_response_of_squat_reinforced_concrete_shear_walls_subjected_to_combined_thermal_and_seismic_loadings*, January 2018.

R2. **Deshpande, A. A.**, Terranova, B. R., and Whittaker, A. S. "Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations," Part XXXII, Report No. UB CSEE/SEESL-2018-31, State University of New York at Buffalo, Buffalo, New York, 2018.

R3. **Deshpande, A. A.**, and Whittaker, A. S. "Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations," Part XXXIII, Report No. UB CSEE/SEESL-2018-32, State University of New York at Buffalo, Buffalo, New York, 2018.

R4. **Deshpande, A. A.**, and Wu, T. "An experimental study of the in-plane response of a reinforced masonry wall built using 8-inch NRG continuously insulated concrete masonry units (CICMU)," Report No. UB CSEE/SEESL-2019-01, State University of New York at Buffalo, Buffalo, New York, 2019.

R5. **Deshpande, A. A.**, and Whittaker, A. S. "Seismic qualification test of ceiling systems, a study for Armstrong Building Products Operations," Part XXXIIV, Report No. UB CSEE/SEESL-2019-02, State University of New York at Buffalo, Buffalo, New York, 2019.

R6. **Deshpande, A. A.**, and Whittaker, A. S. "Multiscale Study of Reinforced Concrete Shear Walls Subjected to Elevated Temperatures," Technical Report MCEER-20-0001, University at Buffalo, State University of New York, Buffalo, New York, 2020.

Posters and Presentations

P1. **Deshpande, A. A.**, Kumar, D., and Ranade, R. "Concrete solutions for high temperatures," *97th U.S. Transportation Research Board Annual Meeting*, Washington, D.C., January 2018.

P2. Kumar, D., **Deshpande, A. A.**, and Ranade, R. "Crack-free ductile concrete for resilient and sustainable infrastructure," *97th U.S. Transportation Research Board Annual Meeting*, Washington, D.C., January 2018.

P3. **Deshpande, A. A.**, Kumar, D., Ranade, R., and Whittaker, A. S. "Concrete solutions for high temperatures," *ASCE Structures Congress*, Orlando, Florida, April 2019.

P4. **Deshpande, A. A.** "Seismic Behavior of reinforced concrete walls at elevated temperature," *2019 ACI Spring Convention*, Quebec City, Canada, March 2019.

PEER REVIEW

Construction and Building Materials (2019),
European Journal of Environmental and Civil Engineering (2020),
Nuclear Engineering Design (2020),
Journal of Materials in Civil Engineering (2021),
KSCE (Korean Society of Civil Engineers) Journal of Civil Engineering (2021).

SOFTWARE SKILLS

Proficient in Abaqus, Ansys, AutoCAD, ETABS, LS-DYNA, MATLAB, Plaxis-2D, Plaxis-3D, Python, SAFE, SAP2000, XTRACT.

AFFILIATIONS

American Concrete Institute (ACI),
American Institute of Steel Construction (AISC),
American Society of Civil Engineers (ASCE), and
Earthquake Engineering Research Institute (EERI).