

Nirmala Gnanapragasam PhD, PE
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EDUCATION:

Ph.D. Civil Engineering, Northwestern University, 1993.

M.S. Civil Engineering, Northwestern University, 1988.

B.Sc. Civil Engineering (First Class Honors), University of Moratuwa (Srilanka), 1985.

ACADEMIC EXPERIENCE

Associate Professor 1998 – Present

Dept. of Civil & Env. Eng
Seattle University

Assistant Professor 1993 – 1998

- Courses taught: Engineering Geology, Soil Mechanics, Foundation Design, Strength of Materials, Water Resources, Fluid Mechanics, Introduction to Civil Engineering, Natural Disasters
- Affiliate Director, Project Lead the Way – Engineering, Washington State (2009-2018)
- Senior Design coordinator of the Department (from Fall 2004)
- Faculty Advisor for the following industrially sponsored senior design projects:
 - Comparison of storm water models used in Western Washington (yr '07-08)
 - Civil Design for a Mixed Use Development in Seattle (yr '06-07)
 - Community Recreation Club Reconstruction in Bellevue (yr '05-06)
 - State-Government-Developer Coordination of Highway Improvements (yr '04-'05)
 - Design of a monitoring method for Soil Stormwater detention system ('03-'04)
 - Conceptual design of Capitol Hill Light Rail Station ('00-'01)
 - Geotechnical Study of Seattle University Student Center ('99-'00)
 - Union-Massachusetts Transmission line Reroute and Replacement ('98-'99)
 - Bear Creek Culvert Retrofit for Fish Passage ('97-'98)
 - Holly Park Storm Drainage System Design ('97-'98)
 - Partial Seismic Retrofit of Skokomish River Bridge ('96-'97)
 - Winterwood Estate Flood Control Study ('96-'97)
 - Design of a Landfill liner for Roosevelt Regional Landfill ('95 -'96)
 - Construction Materials from Pulpmill inorganic solid residuals ('95 -'96)
 - Design of a stormwater treatment system for the Everett Pulp Mill ('94 -'95)
 - Design of a stream crossing in phase II of the Iron Goat Trail construction ('94-'95)
 - Engineering solutions to a storm water overflow problem ('93 -'94),
 - Design of a discharge flume structure for White river hydro power project ('93-'94)

Instructor

Dept of Civil Engineering
Northwestern University

1990 to 1992 (summers)

Taught course titled “Introduction to Engineering” in the National High School Institute Program

**Teaching/Research Assistant
1986 to 1993**

Dept of Civil Engineering
Northwestern University

Teaching Assistant for Geotechnical Engineering and basic engineering courses

Carried out research in the following projects:

- Microstructural changes in clay-sand composites in the presence of organic liquids
- Adsorption characteristics of Ra-226 onto bentonite in uranium mill tailing wastes
- Triaxial testing of Evanston beach sand to determine strength parameters
- Vegetative reclamation of pyretic coal refuse

PROFESSIONAL EXPERIENCE:

Senior Geotechnical Engineer (2007 – present)

Shannon & Wilson Inc.
Seattle, Washington

Geotechnical Engineer (Summers 98, 99)

Washington SR 167 HOT Lane project

- Designed the foundations for luminaires, gantry polls & sign structures
- Analyzed detention ponds for stability, seepage and settlement
- Carried out QA/QC for the design of noise walls

Dakota, Minnesota and Eastern (DM&E) Railroad project

- Assisted in the development of a data base for the Subsurface Exploration Program
- Maintained and coordinated field exploration schedule and data

Seattle Sound Transit - Link Light Rail Project

- Researched the tunnel construction case histories in Seattle area for the Geotechnical Investigative Report (GIR)
- Prepared the Geotechnical Data Report (GDR) for the Link Light Rail Project
- Prepared the geologic profiles along the various proposed light rail alignments

Geotechnical Engineer

Woodward Clyde Consultants
Seattle, Washington

July 97 - September 97

- Performed liquefaction, lateral spread and seismic analyses for a bridge site in Oregon.
- Carried out slope stability analysis to increase the capacity of a dam in Washington state.
- Worked on the micro-zonation study of the Seattle Area for Seismic Analysis.
- Carried out preliminary deep foundation design for a bridge pier in Oregon.

PUBLICATIONS:

Gnanapragasam N. (2023). “Client Focused Technical Writing through Laboratory Report Preparations in Geotechnical Engineering – A Case Study”, Proceedings of the Annual Conference of the American Society of Engineering Education.

Gnanapragasam N. Lauer J.W, Smith-Pardo J. P. Marsolek M., Canney (2015). “International Civil Engineering Capstone Projects – Benefits, Challenges and Lessons Learned”, International Journal of Engineering Education, Vol 31, No. 6(B).

- Kuder K., **Gnanapragasam N.**, Smith-Pardo J.P. (2015). "Role and Impact of Structural Retrofit Capstone Projects", *International Journal of Engineering Education*, Vol 31, No. 6(B).
- Smith- Pardo J.P., Kuder K., **Gnanapragasam N.** (2015). "Learning Challenges and Opportunities from Seismic Retrofit Capstone Projects", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Canney N. E., **Gnanapragasam N.** (2015). "Work in Progress: Rubric Development for Year-long Civil Capstone Projects", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Gnanapragasam N.** Lauer J.W, Smith-Pardo J. P. Marsolek M. (2014). "International Civil Engineering Capstone Projects – Benefits, Challenges and Lessons Learned", *Capstone Design Conference*, Columbus, Ohio.
- Kuder K., **Gnanapragasam N.**, Smith-Pardo J.P. (2014). "Experiential Learning through Structural Retrofit Capstone Projects", *Capstone Design Conference*, Columbus, Ohio.
- Kuder K., **Gnanapragasam N.** (2011). "Implementing Peer-Reviews in Civil Engineering Laboratories", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Gnanapragasam N.** (2010). "Evolution of Technical Writing in Senior Design – A Case History", *ASEE Advances in Engineering Education*, Volume 2(1).
- Gnanapragasam N.**, Kuder K., Dragovich J.J. (2008). "Comparison between Grade Earned in a Course and Performance in a simulated FE Exam for Mechanics Related Courses", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Gnanapragasam N.** (2008). "Industrially Sponsored Senior Capstone Experience: Program Implementation and Assessment", *ASCE Journal of Professional Issues in Engineering Education and Practice*, July.
- Gnanapragasam N.** (2007). "Program Outcome Assessment in an Industrially Sponsored Senior Capstone Course", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Gnanapragasam N.** (2007). "Exploring Math through Math Competitions at the Elementary School Level: Case Study of a K-12 Outreach", *Proceedings of the Annual Conference of the American Society of Engineering Education*.
- Gnanapragasam N.** (2007). "Evolution of Technical Writing in Senior Design - A Case History", *National Capstone Design Course Conference*, Boulder, Colorado.
- Kuder K, **Gnanapragasam N.** (2007) "Undergraduate Research Opportunities in Senior Design", *National Capstone Design Course Conference*, Boulder, Colorado.
- Gnanapragasam N.** (2000). "Active earth pressure in cohesive soils with inclined ground surface", *Canadian Geotechnical Journal*, Vol 37, February, 171-177.
- Gnanapragasam N**, Barayuga E, Cushman R, Parico V, Richards L. (1998). "Construction Materials from Pulpmill Solid Residuals - A Feasibility Study", *Technology Journal of the Franklin Institute*, Vol 335A, August, 35-42.

Gnanapragasam N., Lewis B.G., Finno R.J. (1995). "Microstructural Changes in Sand-Bentonite Soils when Exposed to Aniline", ASCE - Journal of Geotechnical Engineering, Vol 121(2), 119-125.

Gnanapragasam N., Lewis B.G. (1994). "Effects of Xylene and Aniline on Bentonite Mineralogy", Agronomy Abstracts.

Lewis B.G., MacDonnell M. M., **Gnanapragasam N.** (1992). "Application of Soil Physical, Chemical, and Bioassay Methods to Coal Refuse", ASTM Special Technical Publication, No 1162.

Lewis B.G., MacDonnell M. M., **Gnanapragasam N.** (1992). "Pyritic Waste from Pre-combustion Coal Cleaning", Coal, Energy, and Environment Conference, Czechoslovakia.

PROFESSIONAL GEOTECHNICAL ENGINEERING REPORT:

A Final Geotechnical Data Report for Sound Transit Link Light Rail Project: Report prepared for the Puget Sound Transit Consultants by Shannon and Wilson Inc., Seattle, October 1998.

GRANTS & AWARDS:

National Council of Examiners for Engineering and Surveying (NCEES) Engineering Awards: 2023, 2022 (two awards), 2021, 2019 (two awards) 2018 (two awards), 2017 (two awards), 2016, 2015, 2014, 2013 (two awards), 2012 (two awards), 2011 (two awards), 2009.

2015 Region IV Outstanding Order of the Engineer Link Coordinator Award.

Dean's Award 2014, College of Science and Engineering.

MATHCOUNTS Head Coach of Fourth Place Team, Seattle Chapter (team of sixth graders advancing to State Level Competition), 2012.

National Science Foundation – Research Opportunity Award, 2006.

Academic Engineer of the Year - Puget Sound Engineering Council, 2006.

Thomas J. Bannan Endowed Chair, 2000- 2002.

Bannan Foundation Grant for Laboratory improvement, 1998.

Grand Prize Winner of Third Annual Padnos Design Competition, Sponsored by Grand Valley State University, American Society of Mechanical Engineers and Padnos Foundation, 1996.

Seattle University Summer Faculty Fellowship, 1994.

SERVICES TO THE UNIVERSITY/PROFESSION/COMMUNITY:

- Member of the Washington State Board of Registration for Professional Engineers and Land Surveyors (Oct 13 – July 23); Exam Qualification Committee Chair 2014-15, 2022-23; Board Chair 2016-17; Practice Committee Chair, 2017-18, Onsite waste water committee chair 2021-22.

- Member of the NCEES Examination of Professional Engineers Committee 2016-17

- Affiliate Director for Engineering – Washington State, Project Lead the Way (PLTW), 2009–2018.
- Link Coordinator for Order of the Engineer at Seattle University (2010-present).
- Member of the Mountlake Terrace High School STEM Program Partnership team, Fall 2011 – 2014.
- Design team member of the Washington State Leadership and Assistance for Science Education Reform – Science, Technology, Engineering and Mathematics (LASER-STEM) program, Fall 2011.
- Member of Seattle University Goldwater Scholarship Review Committee, Fall 2010 – 2012).
- Peer Consultant, Seattle University Center for Excellence in Teaching and Learning (CETL), 2009 – 2014.
- President of American Society of Civil Engineering ASCE Seattle Section, 2003- 04.
- Faculty Advisor to the Seattle University ASCE Student Chapter, 1997 – 2010.
- Faculty liaison for the American Public Works Association, 1994 to 2010.
- Site Coordinator, Washington State Math Council’s Elementary and Middle School Math Olympiad, Seattle University, 2002-2018.
- Volunteer Math Coach, local elementary school, 2000-2012.
- Faculty Technology Committee, 2000 - 2009.
- Science and Engineering Curriculum Committee, 2003-2007.
- Science and Engineering School Personnel Committee, 1999-2000.
- Secretary of the ASCE Seattle section Geotechnical Engineering group 1996-1997.
- Chair of the ASCE Seattle section Geotechnical Engineering group, Annual Spring Seminar Planning committee, 1996-1997.
- Sullivan Leadership Awards Committee, 1995-1997.

PROFESSIONAL REGISTRATION:

Professional Engineer, State of Washington, 1998.

PROFESSIONAL MEMBERSHIP:

Member of the American Society of Civil Engineers.

Member of the American Society of Engineering Education.