

Manish Roy, Ph.D.

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EDUCATION

Doctor of Philosophy (Ph.D.) in Civil Engineering **2019**

University of Connecticut, Storrs, CT

Dissertation

“Investigation of the Bond Behavior of Steel Reinforcement Bars Embedded in Ultra High Performance Concrete under Static Loads using Finite Element Modeling”

Master of Science (M.S.) in Civil Engineering **2011**

West Virginia University, Morgantown, WV

Thesis

“Development and Evaluation of High Performance Fiber Reinforced Concrete as a Repairing Material”

Bachelor (Hons.) of Civil Engineering (B.E.) **2000**

Jadavpur University, Kolkata, West Bengal, India

PROFESSIONAL EXPERIENCE

(AY: ACADEMIC YEAR, S: SPRING, SUM: SUMMER, F: FALL)

University of Connecticut, Storrs, CT

Assistant Professor in Residence

Aug 2019-present

Teaching

- Senior Design I and Senior Design II – CE/ENVE Major Requirement courses; Senior level; Enrollment ~ 20 (each course) AY23-24, AY22-23, AY21-22, AY20-21, AY19-20
- Computer Aided Site Design – CE/ENVE Professional Requirement course; Senior level; Enrollment ~75 S23, S22, S21, S20
- Soil Mechanics – CE Major Requirement course; Senior/Junior level; Enrollment ~ 100 F23, F22, F21, F20, F19
- Principles of Construction I – CE Major Requirement course; Senior/Junior level; Enrollment ~ 100 F23
- Introduction to Computer Aided Design – CE/ENVE Major Requirement course; Sophomore level; Enrollment ~ 5-150 (varied) F22, S21, F20
- Introduction to Geospatial Analysis and Measurement – CE Major Requirement course; Sophomore level; Enrollment ~ 100 F19
- Foundations of Engineering – Required course in School of Engineering; First Year level; Enrollment ~ 450 S23, S22, S21, S20
- Independent Study in Environmental Engineering – Enrollment = 3 S20

Research

<ul style="list-style-type: none"> • Experiential Learning for Civil Engineering Students Using a Small-Scale Structural Maquette, Co-PI, funded by UConn School of Engineering (total award - \$5,000) 	Dec 2022-Jun 2023
<ul style="list-style-type: none"> • NSF:RED/INCLUDE Project – Redesign Soil Mechanics course to enhance the learning experience of neuro-diverse students in Civil Engineering 	S21-present
<ul style="list-style-type: none"> • Finite element modeling of Ultra High Performance Concrete 	F19-present
Graduate Assistant	Jan 2012-Aug 2019
Teaching	
<ul style="list-style-type: none"> • Physics (General Physics I / General Physics with Calculus I / Physics for Engineers I) – Lab Instructor; First Year/Sophomore level; Enrollment ~ 50 	S15-19, F14/16-18
<ul style="list-style-type: none"> • Design of Reinforced Concrete Structures – Lab Instructor; CE Professional Requirement course; Senior/Junior level; Enrollment ~ 90 	F12-14
Research	
<ul style="list-style-type: none"> • Developed a novel method for modeling Ultra High Performance Concrete (UHPC) using finite element simulation 	S12-Sum19
<ul style="list-style-type: none"> • Investigated the interaction between UHPC and steel shear studs by finite element simulation 	S14-Sum19
<ul style="list-style-type: none"> • Evaluated the bond between UHPC matrix and steel fibers by finite element simulation 	S12-F14
West Virginia University, Morgantown, WV	
Graduate Assistant	Aug 2009-Dec 2011
Teaching	
<ul style="list-style-type: none"> • Timber Design – Teaching Assistant; CE Elective course; Senior level; Enrollment ~ 45 	S11
<ul style="list-style-type: none"> • Structural Analysis-I – Lab Instructor / Teaching Assistant; CE Major Requirement course; Senior/Junior level; Enrollment ~ 25 	F09
Research	
<ul style="list-style-type: none"> • Developed High Performance Fiber Reinforced Concrete (HPFRC) using locally available commercial ingredients 	F09-F11
<ul style="list-style-type: none"> • Evaluated the bond between normal-strength concrete and HPFRC 	F09-F11
DC Industrial Plant Services Pvt. Ltd., India	
Manager – Project Monitoring	Apr 2009-Jul 2009
<ul style="list-style-type: none"> • Planned and monitored the civil and structural work of the Ash Handling System of a 1500 MW super thermal power plant 	
Development Consultants Pvt. Ltd., India	
Assistant Manager-Project Monitoring & Control	Mar 2007-Mar 2009

- Worked as a project management consultant in a large multi-storied housing complex (incl. sixteen storied and fourteen storied buildings)

Shapoorji Pallonji & Co. Ltd., Bangladesh

Senior Engineer (Construction)

Jan 2005-Mar 2007

- Planned and monitored the construction of the New Canadian Chancery and Official Residence Project of Foreign Affairs Canada in Dhaka, Bangladesh

Shapoorji Pallonji & Co. Ltd., India

Senior Engineer (Construction) / Assistant Engineer / Graduate

Aug 2000-Dec 2004

Engineer Trainee

- Worked in diverse areas of civil engineering such as construction supervision, quality control, planning and billing, business development, tendering, and estimation
- Responsible for the successful implementation of the planning/billing modules of the Enterprise Resource Planning (ERP) software in the Eastern Region
- Trained engineers/managers on using ERP
- Worked as a core member of the company's 'Knowledge Management' cell

HONORS AND RECOGNITION

University of Connecticut

- C.R. Klewin, Inc. Excellence in Teaching Award, Department of Civil & Environmental Engineering 2023, 2022
- Student Marshal for Commencement, selected by the Graduating Seniors in Civil Engineering 2023, 2022
- Nominated for American Association of University Professors (AAUP)-UConn Chapter Teaching Excellence – Early Career Award 2023
- Featured as a Career Champion spotlight in the Center for Career Development's blog Oct 2022
- Recognition by the Office of Provost for Excellence in Teaching (issuance of such letters has been discontinued effective 2021) 2020, 2015-18
- Sponsored by the Center for Excellence in Teaching and Learning (CETL) to attend the Teaching Professor Virtual Conference organized by Magna Publications 2022, 2020
- "Scholarship of Teaching and Learning (SoTL)" Fellowship by CETL 2019
- "Fall 2018 Doctoral Dissertation Fellowship" by the Graduate School 2018
- "Spring 2016 Graduate Travel Award" by the Graduate School 2016
- "Fall 2015 Fellowship" by CEE department 2015
- "Narasimha Rao Adidam Memorial Scholarship" by CEE department 2014

- “Pre-doctoral Fellowship” by CEE department 2012, 2013
- National Institute on Scientific Teaching**
- Scholarship to attend the Scientific Teaching Short Course 2020
- NorthEast Transportation Training and Certification Program (NETTCP)**
- “Jack Stephens Scholarship” 2012
- Prestressed Concrete Institute**
- 3rd place in Zone 4 of PCI Big Beam Contest 2010 2010
- Shapoorji Pallonji & Co. Ltd., India**
- Best Employee of Eastern Region 2004
- Government of India – Ministry of Human Resource Development**
- National Scholarship Award based on the results of the Secondary Examination (Grade 10 – ranked 33rd among ~500,000 examinees) 1994-95

TEACHING INTERESTS

- Concrete materials
- Design of reinforced concrete structures
- Structural analysis
- Mechanics of materials
- Soil Mechanics
- Foundation Design

RESEARCH INTERESTS

- Scholarship of Teaching and Learning (SoTL)
- Finite element modeling of cementitious materials
- Experimental testing of high performance concrete / composite construction materials
- Repair / rehabilitation of concrete structures

SERVICES

(AY: ACADEMIC YEAR, S: SPRING, SUM: SUMMER, F: FALL)

University of Connecticut

Board Member

- Career Champion Advisory Board, Center for Career Development F20-present

Committee Member

- Career Plan Development Committee, Center for Career Development S23-present
- Teaching Observation Committee, CEE department AY 22-23, AY21-22
- Undergraduate Curricula & Courses Committee, CEE department AY20-21

Reviewer

• Ph.D. Dissertation oral defense – 2 Ph.D. candidates	Sum20, S22
• Ph.D. Proposal defense – 2 Ph.D. students	F22, F21
Advisor	
• Honors Advisor, CEE department	F20-present
• Academic Advisor, CEE department	F19-present
• Honors Thesis Supervisor	AY 2022-23
• Honors conversion projects (total 7 projects)	S23, F22, S22, F19
Panelist	
• Invited Panelist (“Discuss operationalizing career in the classroom for engineering”), Center for Career Development	S22
• Invited speaker, New TA Orientation, Physics Department	F20
• Invited Panelist (“Preparing to teach”), New TA Orientation, Center for Excellence in Teaching and Learning	F19
Instructions/Presentations	
• Instructor, SoE/CEE Open House	F19, F21, S23
• Instructor, Orientation to Engineering (ENGR 1000) class, School of Engineering	F19
Others	
• “Explore Engineering” (outreach activity for middle school students), School of Engineering	2014-18
• Website maintenance, Advanced Cementitious Materials and Composites Laboratory (ACMC), CEE department	2012-19
Outside University of Connecticut	
Member	
• Civil Engineering Division Executive Committee, American Society for Engineering Education (ASEE)	2023-24, 2022-23
• Chair of Committee on Educational Policy, 2024 ASEE Annual Conference & Exposition, Portland, Oregon, June 23-26, 2024	2023-24
• Chair of Committee on Effective Teaching, 2023 ASEE Annual Conference & Exposition, Baltimore, Maryland, June 25-28, 2023	2022-23
Moderator	
• Technical Session titled “Topics in the Academic-Industry Zone”, 2023 ASEE Annual Conference & Exposition, Baltimore, Maryland, June 25-28, 2023	2023
Panelist	
• Invited Speaker, Panel Discussion on “First Year Engineering”, NSF INCLUDES Alliance project (NSF Award# 2119930), Northeastern University, Virtual	Sum22
Reviewer	
• “Journal of Materials in Civil Engineering”, American Society of Civil Engineers (ASCE)	
• “ASEE Annual Conference & Exposition”, American Society for Engineering Education (ASEE)	
• “Construction and Building Materials” journal, Elsevier	
• “Cogent Engineering” journal, Taylor & Francis	

- “Materials” journal, MDPI
- Mentor**
- American Society of Civil Engineers (Number of mentee at present – 1)
- Judge**
- Connecticut Invention Convention (CIC) 2018
 - Mini-bowling competition, ASCE Virginias’ Conference, West Virginia University 2011

PROFESSIONAL DEVELOPMENT

(AY: ACADEMIC YEAR, S: SPRING, SUM: SUMMER, F: FALL)

- ASEE 2023 Annual Conference, American Society for Engineering Education (ASEE), Baltimore, MD Sum23
- Workshop on “Working Towards a More Critical Community Engagement Praxis,” Organized by the Center for Excellence in Teaching and Learning, UConn S23
- Workshop on “Authentic Assessment Alternatives in the Age of AI /ChatPT,” Organized by the Center for Excellence in Teaching and Learning, UConn S23
- Teaching Professor Virtual Conference, Magna Publications F22, F20
- De-centering Grading Special interest group, CETL, UConn F22
- CEE Junior Faculty Mentoring Workshops, CEE dept., UConn AY 22-23
- Workshop on “*Active Learning and Student Engagement in Large Lecture STEM Classes: lessons learned and findings from a decade of research and teaching*,” Organized by the Center for Excellence in Teaching and Learning and the NEAG School of Education, UConn F22
- Presentation on “Caucusing in the Classroom: Leveraging Affinity and Alliance for Justice, Inclusion and Deep Learning,” organized by the Office of the Provost, UConn F22
- ASEE 2022 Annual Conference, American Society for Engineering Education (ASEE), Minneapolis, MN Sum2022
- 2.5-day Workshop on Project-Based Learning, Center for Project-Based Learning, Worcester Polytechnic Institute Sum22
- Online 6-week Course on Essentials of Effective Proposal Preparation, American Society for Engineering Education (ASEE) S22
- FALCoN Workshop on “Using active learning (even in large classes): What teaching expertise do you need?”, National Institute on Scientific Teaching (NIST) S22
- ASEE-NE 2021 Annual Conference, American Society for Engineering Education (ASEE) – Northeast (NE) Section, Worcester, MA F21
- Book Discussion on Ungrading: Why rating students undermines learning, CETL book club, University of Connecticut Sum21
- “Scientific Teaching Short Course”, National Institute on Scientific Teaching, Yale University F20

- American Society for Engineering Education (ASEE) Virtual Conference 2020
- Short course on “Preparing for Distance Education”, Center for Excellence in Teaching and Learning (CETL), University of Connecticut Sum20
- “SoTL (Scholarship of Teaching and Learning) by Design”, CETL, University of Connecticut S20
- 3 courses as a part of “Graduate Certificate in College Instruction”, University of Connecticut S15, S19
- Short course on “Designing Your Hybrid Blended Course”, eCampus, University of Connecticut 2019
- “2019 Conference for First Year Innovation”, FYP, University of Connecticut 2019
- Short course on “Exploring Online Learning”, eCampus, University of Connecticut 2018
- Webinar on “Getting Started with Flipped Instruction”, CETL, University of Connecticut 2018
- Annual “Faculty Teaching Workshop”, CETL, University of Connecticut 2017-19, 2022
- “Teaching through Diversity” – a year-long Networked Improved Community (NIC) project, Neag School of Education, University of Connecticut 2017-18
- “*Make it Stick, The Science of Successful Learning*” (seminar) by Peter Brown 2018
- Conference on “Teaching at Teaching Intensive Institutions”, Westfield State University, MA 2018

COMPUTER PROGRAM SKILLS

- Finite Element Analysis packages – Abaqus, Atena, LS-Dyna
- Programming languages – Python/Jupyter Notebook, MATLAB, C, Fortran
- Computer Aided Design – AutoCAD, MicroStation
- Structural analysis and design – StructurePoint, RISA 2D
- Project Management – Microsoft Project

SCHOLARLY CONTRIBUTIONS

Refereed Journal Publications

- Jiao, P., **Roy, M.**, Barri, K., Zhu, R., Ray, I., and Alavi, A.H. (2019). "High-performance fiber reinforced concrete as a repairing material to normal concrete structures: Experiments, numerical simulations and a machine learning-based prediction model." *Construction and Building Materials* 223 (2019) 1167-1181. *Journal Impact Factor = 6.141.*
- **Roy, M.**, Hollmann, C., Wille, K. (2019) "Influence of Fiber Volume Fraction and Fiber Orientation on the Uniaxial Tensile Behavior of Rebar-Reinforced Ultra-High Performance Concrete." *Fibers* (2019), 7, 67. *Journal CiteScore = 4.6.*
- **Roy, M.**, Hollmann, C., and Wille, K. (2017). "Influence of volume fraction and orientation of fibers on the pullout behavior of reinforcement bar embedded in ultra high performance concrete", *Construction and Building Materials* 146 (2017) 582–593. *Journal Impact Factor = 6.141.*

- **Roy, M.**, Ray, I., and Davalos, J.F. (2014). "High Performance Fiber Reinforced Concrete: Development and Evaluation as a Repairing Material." *J. Mater. Civ. Eng.*, 2014, 26(10), pp. 04014074-1 - 10. *Journal Impact Factor = 2.169.*

Conference Proceedings

- Roy, M., Motaref, S., and **Roy, M.** (2023). "Impact of Project-Based Assignments on Students' Learning Experience in Inclusive Courses", 2023 ASEE Annual Conference, Baltimore, MD. June 25-28, 2023.
- **Roy, M.**, Syharat, C., and Chrysochoou, M. (2022). "Redesigning Soil Mechanics as an Inclusive Course", 2022 ASEE Annual Conference, Minneapolis, MN. June 26-29, 2022.
- Roy, Mousumi and **Roy, M.** (2022). "Are the Technological Tools used in Virtual and Hybrid Classrooms Still Useful in a Fully In-Person Setting? An Assessment of the Effectiveness of the Technological Tools in Enhancing the Pedagogy in the New Normal", 2022 ASEE Annual Conference, Minneapolis, MN. June 26-29, 2022.
- Jang, S., Motaref, S., Roy, Mousumi, and **Roy, M.** (2021). "Enhancing Student Engagement in Civil Engineering Courses during the Pandemic using Remote and Hybrid Modes", 2021 ASEE-NE Annual Conference, Worcester, MA. October 21-23, 2021.
- **Roy, M.**, and Wille, K. (2020). "Finite element investigation of the influence of fiber orientation on the pullout behavior of rebar embedded in Ultra-High Performance Concrete", 5th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials, Kassel, Germany. March 11-13, 2020.
- **Roy, M.**, Hollmann, C., and Wille, K. (2016). "Effect of Fiber Orientation on Pullout Behavior of Rebar Embedded in UHPC", 4th International Symposium on Ultra-High Performance Concrete and High Performance Construction Materials, Kassel, Germany. March 9-11, 2016.

Oral Presentations

- "*Impact of Project-Based Assignments on Students' Learning Experience in Inclusive Courses,*" 2023 ASEE Annual Conference, Baltimore, MD., June 2023.
- "*INCLUDE Project - Learn How to Support Neurodiverse Students,*" UConn School of Engineering, Storrs, CT, March 2023.
- "*Learning Experience from the 2.5-day Workshop on Project-Based Learning at the WPI-PBL Institute,*" UConn School of Engineering APiR Monthly meeting, Storrs, CT, October, 2022.
- "*Redesigning Soil Mechanics as an Inclusive Course,*" 2022 ASEE Annual Conference, Minneapolis, MN., June 2022.
- "*Are the Technological Tools used in Virtual and Hybrid Classrooms Still Useful in a Fully In-Person Setting? An Assessment of the Effectiveness of the Technological Tools in Enhancing the Pedagogy in the New Normal,*" 2022 ASEE Annual Conference, Minneapolis, MN., June 2022.
- "*Enhancing Student Engagement in Civil Engineering Courses during the Pandemic using Remote and Hybrid Modes,*" 2021 ASEE-NE Annual Conference, Worcester, MA., October 2021.
- "*Calibrating Tensile Properties of UHPC with Smearred Fibers,*" ACI Spring 2016: The Concrete Convention and Exposition, Milwaukee, WI, April, 2016.
- "*Numerical Simulation of Ultra-High Performance Fiber Reinforced Concrete in Compression and Tension,*" Seventh M.I.T. Conference on Computational Fluid and Solid Mechanics, Cambridge, MA, June, 2013.

- “*Development and Characterization of Multifunctional Cementitious Systems using Nanomaterials: A Plan of Study*,” 21st Annual NIST Computer Modeling Workshop, Baltimore, MD, August, 2010.

PROFESSIONAL MEMBERSHIPS

- American Society of Civil Engineers (ASCE)
- American Society for Engineering Education (ASEE)
- National Institute on Scientific Teaching (NIST)