

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.S.)** **2000**
Jadavpur University, Kolkata, West Bengal, India

PROFESSIONAL EXPERIENCE

- University of Connecticut, Storrs, CT**
- Assistant Professor in Residence** **Aug 2019-present**
- Teaching**
- Computer Aided Site Design (CE 4410) – CE Professional Requirement course; Senior level; Enrollment ~75 S20, S21
 - Senior Design I (CE 4900W / ENVE 4910W) and Senior Design II (CE 4920W / ENVE 4920W) – CE/ENVE Major Requirement courses; Senior level; Enrollment ~ 20 (each semester) AY19-20, AY20-21
 - Soil Mechanics (CE 3510) – CE Major Requirement course; Senior/Junior level; Enrollment ~ 100 F19, F20
 - Introduction to Computer Aided Design (CE 2411 / ENVE 2411) – CE/ENVE Major Requirement course; Sophomore level; Enrollment ~ 3-150 (varied) S20, F20, S21
 - Introduction to Geospatial Analysis and Measurement (CE 2410) – CE Major Requirement course; Sophomore level; Enrollment ~ 100 F19
 - Foundations of Engineering (ENGR 1166) – Required course in School of Engineering; Freshman level; Enrollment ~ 450 S20, S21
- Research**
- Finite element modeling of Ultra High Performance Concrete Aug'19-present
 - NSF:RED/INCLUDE Project – Redesign Soil Mechanics (CE 3510) course to enhance the learning experience of neuro-diverse students in Civil Engineering Jan'21-present

Graduate Assistant	Jan 2012-Aug 2019
Teaching	
<ul style="list-style-type: none"> Physics (PHYS 1201Q / PHYS 1401Q / PHYS 1501Q) – Lab Instructor; Freshman/Sophomore level; Enrollment ~ 50 	F14/16-18, S15-19
<ul style="list-style-type: none"> Design of Reinforced Concrete Structures (CE 3640) – 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 	Jan'12-Aug'19
<ul style="list-style-type: none"> Evaluated the bond between UHPC matrix and steel fibers by finite element simulation 	Jan'12-Aug'19
<ul style="list-style-type: none"> Investigated the interaction between UHPC and steel shear studs by finite element simulation 	Jan'14-Dec'14
West Virginia University, Morgantown, WV	
Graduate Assistant	Aug 2009-Dec 2011
Teaching	
<ul style="list-style-type: none"> Timber Design (CE 464) – Teaching Assistant; CE Elective course; Senior level; Enrollment ~ 45 	S11
<ul style="list-style-type: none"> Structural Analysis-I (CE 361) – 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 	Aug'09-Dec'11
<ul style="list-style-type: none"> Evaluated the bond between normal-strength concrete and HPFRC 	Aug'09-Dec'11
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
<ul style="list-style-type: none"> 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
<ul style="list-style-type: none"> 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 Engineer Trainee	Aug 2000-Dec 2004

- 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

National Institute on Scientific Teaching

- Scholarship to attend the Scientific Teaching Short Course 2020

University of Connecticut

- Recognition by the Office of Provost for Excellence in Teaching 2015-18, 2020
- AAUP Merit by the Office of the Provost 2020
- Sponsored by the Center for Excellence in Teaching and Learning (CETL) to attend the Teaching Professor Virtual Conference 2020 organized by Magna Publications 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

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

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

University of Connecticut**Board Member**

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

Committee Member

- Undergraduate Curricula & Courses Committee, CEE department F20-present

Reviewer

- Ph.D. Dissertation oral defense – 1 Ph.D. candidate Sum20

Advisor

- Honors Advisor, CEE department F20-present
- Academic Advisor, CEE department F19-present
- Honors conversion projects (2 students) F19

Workshop / Presentation

- Invited speaker, New TA Orientation, Physics Department F20
- Invited Panelist (“Preparing to teach”), New TA Orientation, CETL F19
- Instructor, CEE Open House F19
- 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**Editorial Board**

- Member, “Materials” Journal (Impact Factor – 3.623), MDPI 2021

Reviewer

- “Journal of Materials in Civil Engineering”, American Society of Civil Engineers (ASCE) 2013, 2020-present
- “ASEE Annual Conference & Exposition”, American Society for Engineering Education (ASEE) 2018-present
- “Construction and Building Materials” journal, Elsevier 2020
- “Cogent Engineering” journal, Taylor & Francis 2019-20

Mentor

- American Society of Civil Engineers 2019-present

Judge

- Connecticut Invention Convention (CIC) 2018
- Mini-bowling competition, ASCE Virginias’ Conference, West Virginia University 2011

PROFESSIONAL DEVELOPMENT

- Reading “Ungrading” by Susan D. Blum (Editor), CETL book club, University of Connecticut Sum21
- Read “How to Be an Antiracist” by Ibram X. Kendi, School of Engineering book club (“SoE Reads”), University of Connecticut F20
- “Scientific Teaching Short Course”, National Institute on Scientific Teaching, Yale University F20
- Teaching Professor Virtual Conference, Magna Publications 2020
- 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
- “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

SCHOLARLY CONTRIBUTION

Refereed Journal Publication

- 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.**, 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

- "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 MEMBERSHIP

- American Society of Civil Engineers (ASCE)
- American Society for Engineering Education (ASEE)