

**RITESH KUMAR, PhD**

Assistant Professor  
Department of Earthquake Engineering  
Indian Institute of Technology Roorkee, India

**Address**

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**Personal Information**

Date of Birth : March 6, 1992  
Nationality: Indian  
Sex: Male

**ACADEMIC DETAILS**

Degree/Certificate	Discipline/University	Date	Grade
Doctorate Specialization: Doctor of Philosophy	<i>Civil Engineering: Geotechnics</i> Tokyo Institute of Technology, Japan	Sep 25, 2020	3.91/4.5
Postgraduate Specialization: Master of Engineering	<i>Civil Engineering: Geotechnics</i> Tokyo Institute of Technology, Japan	Sep 20, 2018	3.83/4.5
Postgraduate Specialization: Master of Technology	<i>Earthquake Engineering: Soil Dynamics</i> Indian Institute of Technology Roorkee, India	Oct 03, 2015	8.818/10
Undergraduate Specialization: Bachelor of Technology	<i>Civil Engineering</i> College of Engineering Roorkee, India	Nov 28, 2012	85.4%
Intermediate Certificate: Class 12	<i>Science</i> U. K. Board, India	Jun 06, 2008	85.2%
High School Certificate: Class 10	<i>Science</i> U. K. Board, India	Jun 03, 2006	81.3%

**ACHIEVEMENTS**

- Recipient of MEXT Scholarship (2016-2021)
- Recipient of DAAD Scholarship for Master's Dissertation Work at Leibniz University of Hanover, Germany (Sep 2014 – Apr 2015)
- University Gold Medal (Batch, 2008-2012)
- "Seth Roshan Lal Jain" Trophy and Gold Medal for the Best Student of College (2012)
- State Certificate of Merit (2008)
- Certificate of Excellence in Scilab Workshop Organized by Fillip Foundation through I.I.T. Bombay Funded by MHRD India
- Winner of "Kusth Mitao Abhiyaan Pratiyogita" at State Level (2004)

**TECHNICAL SKILLS**

- **FEM Software Proficiency** (OpenSees, SAP, ABAQUS, Geo-Studio)

- **Languages** (Matlab, C++, Python)

#### COMMUNICATION SKILLS

- **Hindi** (Native)
- **English** (Professional)
- **Japanese** (Basic)

#### PROJECTS/INTERNSHIPS

- **University of California, Davis, USA** (Ph.D. Internship)  
*[Project:Numerical modeling of an embankment treated with soil-cement walls: A comparative study of soil-liquefaction constitutive models using OpenSees (Oct 18 - Jan 19)]*
- **Leibniz University of Hannover, Germany** (Master's Dissertation Work)  
*[Project:Effects of autocorrelation length of variable soil properties on behavior of monopiles (Sep 14 - Apr 15)]*
- **College of Engineering Roorkee** (B. Tech. Project)  
*[Project:Stability analysis of earth dams and levees (Jan 12 - Jun 12)]*
- **College of Engineering Roorkee** (Research Internship)  
*[Project:Earthquake resistant design of structures (Jun 11 - Aug 11)]*
- **J.S.R. Associates, Roorkee** (Research Internship)  
*[Project:Load testing of building at Doon University, Dehradun, India (Jun 10 - Jul 10)]*

#### WORK EXPERIENCE

- **Visiting Scientist**  
*[Place:RIKEN Center for Computational Science (R-CCS), Kobe, Japan (Dec 20 - )]*
- **Postdoctoral Researcher**  
*[Place:RIKEN Center for Computational Science (R-CCS), Kobe, Japan (Nov 20 - Dec 20)]*
- **Assistant Professor**  
*[Place:Graphic Era University, Dehradun, India (Jun 15 - Jul 16)]*
- **Graduate Engineer Trainee**  
*[Place:Larsen and Toubro Construction, BF division, New Delhi, India (Aug 12 - Jul 13)]*

#### RESEARCH INTEREST

- Finite Element Modeling and Computational Soil Dynamics
- Physical Modeling of Liquefaction Related Problems
- Dynamic Soil-structure-interaction
- Analyses and Design of Offshore Wind Turbines
- Risk and Reliability in Geotechnical Engineering

#### INTERNATIONAL COLLABORATORS

- **Professor Ross W. Boulanger: UC Davis, USA**  
*Project: Numerical modeling of an embankment treated with soil-cement panel walls*
- **Assistant Professor E. Ece Bayat: ITU, Turkey**  
*Project: Element and system level dynamic response of partially saturated liquefiable ground*
- **Associate Professor Kiyonobu Kasama: Kyushu University, Japan**  
*Project: Reliability based design for ground improvement*

• **Senior Lecturer Gabriele Chiaro: UC, New Zealand**

*Project: Dynamic behavior of Toyoura sand*

**PUBLICATION : Journal Papers**

- **Reliability assessment of performance of granular column in a nonuniform liquefiable ground to mitigate the liquefaction-induced ground deformation** (R. Kumar and A. Takahashi)  
*Georisk, January 2021, <https://doi.org/10.1080/17499518.2020.1836378>*
- **Reliability assessment of physical modeling of liquefaction-induced effects on shallow foundation considering nonuniformity in the centrifuge model** (R. Kumar, K. Kasama, and A. Takahashi)  
*Computers and Geotechnics, 122, June 2020; <https://doi.org/10.1016/j.compgeo.2020.103558>*
- **Centrifuge modeling of hybrid foundation to mitigate the liquefaction-induced effects on shallow foundation resting on the liquefiable ground** (R. Kumar, M. Sawaishi, K. Horikoshi and A. Takahashi)  
*Soils and Foundations, 59(6):2083-2098, December 2019; <https://doi.org/10.1016/j.sandf.2019.11.002>*
- **Centrifuge testing to investigate effects of partial saturation on the response of shallow foundation in liquefiable ground under strong sequential ground motions** (R. Kumar, K. Horikoshi and A. Takahashi)  
*Soil Dynamics and Earthquake Engineering, 125, October 2019; <https://doi.org/10.1016/j.soildyn.2019.105728>*
- **Inelastic Response Spectrum for Seismic Soil Pile Structure Interaction** (P.K. Emani, R. Kumar and V.S. PhaniKant)  
*International Journal of Geotechnical Earthquake Engineering, 7(2):24-34, June 2016; DOI: 10.4018/IJGEE.2016070102*
- **Numerical modeling of an embankment treated with soil-cement walls: A comparative study of soil-liquefaction constitutive models using OpenSees** (R. Kumar, R. W. Boulanger and A. Takahashi)  
*Soil Dynamics and Earthquake Engineering (in preparation)*

**PUBLICATION : Conference Papers**

- **Stochastic displacement spectra for a liquefiable ground treated with granular columns** (R. Kumar, K. Horikoshi and A. Takahashi)  
*17th World Conference on Earthquake Engineering, Sendai (Japan) 21-23 July 2020*
- **Development of hybrid foundation to mitigate the liquefaction-induced settlement of shallow foundation** (R. Kumar, M. Sawaishi and A. Takahashi)  
*7th International Conference on Earthquake Geotechnical Engineering, Roma (Italy) 17-20 June 2019)*
- **Centrifuge testing to investigate the effects of partial saturation on liquefaction-induced settlement of shallow foundation** (R. Kumar and A. Takahashi)  
*Proceedings of 53rd Japan National Conference of Geotechnical Engineering, July 2018*
- **Numerical simulation of centrifuge test on liquefiable saturated Toyura sand with level ground** (R. Kumar and A. Takahashi)  
*Proceedings of 2017 JAEE Annual Conference, November 2017*
- **Development of hybrid foundation to mitigate the liquefaction effects under large earthquake** (R. Kumar and A. Takahashi)  
*Proceedings of 2017 Taiwan-Japan Symposium on the Advancement of Urban Earthquake Hazard Mitigation Technology, pp. 113-116, September 2017*
- **Study of Interaction between Axial and Lateral Loading on Piles during Seismically Induced Liquefaction** (P.K. Emani, R. Kumar and V.S. PhaniKant)  
*6th International Conference on Recent Advances in Geotechnical Earthquake Engineering and Soil Dynamics, August 2016*
- **Soil Parametric Study on Behaviour of Monopiles** (R. Kumar and B. K. Maheshwari)  
*6th Annual Conference of the International Society for Integrated Disaster Risk Management, October 2015*