

Ben Leshchinsky

Associate Professor, Geotechnical Engineering, Dual Appointment
School of Civil and Construction Engineering // College of Forestry
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Education

- B.S. in Civil Engineering, University of Delaware, 2007.
- M.S. in Civil Engineering, Columbia University, 2008.
- M.Phil. in Civil Engineering, Columbia University, 2010.
- Ph.D. in Civil Engineering, Columbia University, 2012.

Employment

- Assistant Professor, Department of Forest Engineering, Resources and Management 2012-2018
- Associate Professor, Department of Forest Engineering, Resources and Management 2018-Present
- Associate Professor, School of Civil and Construction Engineering 2018-Present
- Richardson Endowed Professorship 2019-Present

Honors and Awards

- Aufderhide Undergraduate Mentoring Award, Oregon State University, 2015.
- *ASCE Journal of Geotech. and Geoenv. Engineering* Reviewer of the Year, 2015.
- Oregon State University Mortar Board Society Top Professor, 2016.
- *ASCE Journal of Geotech. and Geoenv. Engineering* Reviewer of the Year, 2016.
- Young Professional Best Paper Award, *International Landslide Symposium*, 2016.
- Top Professor, OSU Mortar Board Society, 2016.
- Runner-up for Best Paper of 2015, *Geotextiles and Geomembranes*, 2016.
- Best Paper of 2017, *Geotextiles and Geomembranes*, 2018.
- International Geosynthetics Society Young Member Achievement Award, 2018.
- American Society of Civil Engineers Arthur Casagrande Award, 2020.

Service Activities

- Editorial Board Member, *Geotextiles and Geomembranes*, 2017-Present.
- Editorial Board Member, *ASCE Journal of Geotechnical and Geoenvironmental Engineering*, 2018-Present.
- Editorial Board Member, *Landslides*, 2019-Present.
- Editorial Board Member, *Geosynthetics International*, 2019-Present.
- Journal Reviewer (200+ Papers, 25 Journals)

Professional Licensure

Professional Engineer, Oregon, License Number 90573PE

Journal Articles in Past 5 Years

1. Yang, S.⁺, **Leshchinsky, B.**, Cui, K., Zhang, F., & Gao, Y. (2020). Influence of failure mechanism on seismic bearing capacity factors for shallow foundations near slopes. *Géotechnique*, 1-46.
2. Alberti, S.*, Senogles, A.*, Kingen, K., Booth, A., Castro, P., DeKoekkoek, J., Glover-Cutter, K. Mohny, C., Olsen, M., and **B. Leshchinsky**. (2020). The Hooskanaden Landslide: Historic and Recent Surge Behavior of an Active Earthflow on the Oregon Coast. *Landslides*. In press.
3. Bunn, M.*, **Leshchinsky, B.**, and M. Olsen. (2020). Estimates of Three-Dimensional Rupture Surface Geometry of Deep-Seated Landslides using Landslide Inventories and High-Resolution Topographic Data. *Geomorphology*. In press.
4. **Leshchinsky, B.**, Berg, R., Liew, W., Kawakami-Selin, M.[#], Moore, J. [#], Brown, S., Kleutsch, B., Glover-Cutter, K., Wayne, M. (2020). Characterization of Geogrid Mechanical and Chemical Properties from a Thirty-Six Year Old Mechanically-Stabilized Earth Wall. *Geotextiles and Geomembranes*. In press.
5. Abdollahi, M., Tafreshi, M. and **Leshchinsky, B.** (2019). "Assessment of Geogrid-EPS Geofoam Systems as a Means of Protecting Buried Utilities". *Geosynthetics International*. In press.

6. Bunn, M., **Leshchinsky, B.**, Olsen, M., and A. Booth (2019). "A Simplified, Object-Based Framework for Efficient Landslide Inventorying Using Lidar Digital Elevation Model Derivatives." *Remote Sensing*. In press.
7. **Leshchinsky, B.**, Olsen, M. Mohny, C., O'Banion, M., Bunn, M., Allan, J., and R. McClung. (2019). "A Framework for Quantifying Progressive Landslide Movement Stemming from Undercutting Processes and Hydrological Changes." *Journal of Geophysical Research: Earth Surface*. In press.
8. Stockton, E., **Leshchinsky, B.**, Olsen, M. and T.M. Evans (2019). "Influence of Anisotropic Shear Strength on the Formation of Tension Cracks and Stability of Slopes". *Engineering Geology*. In press.
9. Xie, Y., **Leshchinsky, B.**, and J. Han (2019). "Evaluation of Bearing Capacity on Geosynthetic-Reinforced Soil Structures Considering Multiple Failure Mechanisms." *ASCE Journal of Geotechnical and Geoenvironmental Engineering*. In press.
10. **Leshchinsky, B.**, Booth, A. M., Glover-Cutter, K. M., Mohny, C., Olsen, M. J., & Roering, J. J. (2018). Prepare for Cascadia's next earthquake. *Science*, 362(6418), 1007-1007.
11. Rahimi, M., Tafreshi, S.N., **Leshchinsky, B.**, and A. Dawson. (2019). "Cyclic and Post-cycling Anchor Response in Geocell-Reinforced Sand". *Canadian Geotechnical Journal*. In press.
12. Hossley, A. and **B. Leshchinsky**. (2019). "Stability and Failure Mechanisms of Slopes with Spatially Varying Shear Strength." *Journal of Geotechnical and Geoenvironmental Engineering*. In press.
13. Belart, F., **Leshchinsky, B.**, Chung, W. Green, P., Morrissette, B., Sessions, J. and J. Wimer. (2019). "Sliding Stability of Cable-Assisted Tracked Equipment on Steep Slopes." *Forest Science*. In press.
14. Stockton, E., **Leshchinsky, B.**, Xie, Y. and M. Olsen (2018). "A Generalized Approach Towards Assessing Slope Stability in Heterogeneous Soils." *Transportation Infrastructure Geotechnology*. In press.
15. Hung, C., Lin, G.W., **Leshchinsky, B.** and K. Hsien-Li. (2018) "Extracting Region-Specific Runout Behavior and Rainfall Thresholds for Massive Landslides using Seismic Records: A Case Study in Southern Taiwan." Submitted to *Bulletin of Engineering Geology and the Environment*.
16. Mancuso, C., Belart, F., **Leshchinsky, B.**, Russell, M. and J. Kiser (2018). "Behavior and Assessment of Mobile Anchors in Cable Yarding Systems." *Canadian Journal of Forest Research*. In press.
17. Mancuso, C., Belart, F., and **Leshchinsky, B.** (2018). "Operative Loading in Cable Yarding Systems: Field Observations of Static and Dynamic Tensions in Mobile Anchor Systems." *Canadian Journal of Forest Research*. In press.
18. Tafreshi, M., Rahimi, M., **Leshchinsky, B.** and A. Dawson. (2018). "Experimental and Numerical Investigation of Uplift Capacity of Plate Anchors in Geocell-Reinforced Soil." *Geotextiles and Geomembranes*. In press.
19. Rahimi, M., **Leshchinsky, B.**, Tafreshi, M. (2018). "Assessing the Ultimate Uplift Capacity of Plate Anchors in Geocell-Reinforced Sand." *Geosynthetics International*. In press.
20. Hung, C., Liu, C.H., Lin, G.W., and B. Leshchinsky. (2018) "The Aso-Bridge Coseismic Landslide: A Numerical Investigation of Failure and Runout Behavior using Finite and Discrete Element Methods." *Bulletin of Engineering Geology and the Environment*. In Press.
21. Xie, Y., **Leshchinsky, B.** and Satyal, S. (2018). "Evaluation of Reinforcement Layout on Serviceability of Mechanically Stabilized Earth Walls Supporting Spread Footings." *Ground Improvement*. In press.
22. **Leshchinsky, B.** (2018). "Nested Newmark Model to Calculate the Post-Earthquake Profile of Slopes." *Engineering Geology*. In press.
23. Satyal, S., **Leshchinsky, B.**, Han, J., and M. Neupane. (2018) "Use of Cellular Confinement for Improved Railway Performance on Soft Subgrades: A Numerical Study." *Geotextiles and Geomembranes*. In Press.
24. **Leshchinsky, B.**, Mason, H., Olsen, M. and D. Gillins. (2018) "Lateral Spreading within a Limit Equilibrium Framework: Newmark Sliding Blocks with Degrading Yield Accelerations." *Geotechnique*. In press.
25. Leshchinsky, D., **Leshchinsky, B.**, and Leshchinsky, O. (2017). "Limit state design framework for geosynthetic-reinforced soil structures." *Geotextiles and Geomembranes*. In press.
26. **Leshchinsky, B.**, Olsen, M. J., Mohny, C., Glover-Cutter, K., Crook, G., Allan, J., & Mathews, N. (2017). Mitigating coastal landslide damage. *Science*, 357(6355), 981-982.
27. Wang, L., **Leshchinsky, B.**, Evans, T. M., & Xie, Y. (2017). Active and passive arching stresses in $c'-\phi'$ soils: A sensitivity study using computational limit analysis. *Computers and Geotechnics*, 84, 47-57.
28. Hess, D. M., **Leshchinsky, B.**, Bunn, M., Mason, H. B., & Olsen, M. J. (2017). A simplified three-dimensional shallow landslide susceptibility framework considering topography and seismicity. *Landslides*, 1-21.
29. Gaidzik, K., Ramírez-Herrera, M. T., Bunn, M., **Leshchinsky, B.**, Olsen, M., & Regmi, N. R. (2017). Landslide manual and automated inventories, and susceptibility mapping using LIDAR in the forested mountains of Guerrero, Mexico. *Geomatics, Natural Hazards and Risk*, 1-26.

30. Belart, F., Sessions, J., **Leshchinsky, B.** and G. Murphy. (2017). "Economic implications of moisture content and logging system in forest harvest residue delivery for energy production: a case study." *Canadian Journal of Forest Research*.
31. Sessions, J., **Leshchinsky, B.**, Chung, W., Boston, K., & Wimer, J. (2017). Theoretical Stability and Traction of Steep Slope Tethered Feller-Bunchers. *Forest Science*, 63(2), 192-200.
32. Belart, F., **Leshchinsky, B.** and Sessions, J. (2016) "Finite element analysis to predict in-forest stored harvest residue moisture content." *Forest Science*.
33. Xie, Y., **Leshchinsky, B.**, & Yang, S. (2016). Evaluating reinforcement loading within surcharged segmental block reinforced soil walls using a limit state framework. *Geotextiles and Geomembranes*, 44(6), 832-844.
34. **Leshchinsky, B.** and Y. Xie. Bearing Capacity of Footings Placed near c'- ϕ ' Slopes. (2016). *ASCE Journal of Geotechnical and Geoenvironmental Engineering*. In press.
35. Zhang, F., Leshchinsky, D., Baker, R., Gao, Y., & **Leshchinsky, B.** (2016). Implications of variationally derived 3D failure mechanism. *International Journal for Numerical and Analytical Methods in Geomechanics*, 40(18), 2514-2531.
36. Vahedifard, F., Mortezaei, K., **Leshchinsky, B.**, Leshchinsky, D., & Lu, N. (2016). Role of suction stress on service state behavior of geosynthetic-reinforced soil structures. *Transportation Geotechnics*. In press.
37. Xie, Y., & **Leshchinsky, B.** (2016). Active earth pressures from a log-spiral slip surface with arching effects. *Géotechnique Letters*, 1-7.
38. Gao, Y., Yang, S., Zhang, F., & **Leshchinsky, B.** (2016). Three-dimensional reinforced slopes: Evaluation of required reinforcement strength and embedment length using limit analysis. *Geotextiles and Geomembranes*, 44(2), 133-142.
39. **Leshchinsky, B.**, Evans, T. M., & Vesper, J. (2016). Microgrid inclusions to increase the strength and stiffness of sand. *Geotextiles and Geomembranes*, 44(2), 170-177.
40. Yang, S., **Leshchinsky, B.**, Zhang, F., & Gao, Y. (2016). Required strength of geosynthetic in reinforced soil structures supporting spread footings in three dimensions. *Computers and Geotechnics*, 78, 72-87.
41. Ambauen, S., **Leshchinsky, B.**, Xie, Y., & Rayamajhi, D. (2015). Service-state behavior of reinforced soil walls supporting spread footings: a parametric study using finite-element analysis. *Geosynthetics International*, 23(3), 156-170.
42. **Leshchinsky, B.**, & Ambauen, S. (2015). Limit equilibrium and limit analysis: comparison of benchmark slope stability problems. *Journal of Geotechnical and Geoenvironmental Engineering*, 141(10), 04015043.
43. Vahedifard, F., **Leshchinsky, B.**, Mortezaei, K., & Lu, N. (2015). Active earth pressures for unsaturated retaining structures. *Journal of Geotechnical and Geoenvironmental Engineering*, 141(11), 04015048.
44. **Leshchinsky, B.**, Vahedifard, F., Koo, H. B., & Kim, S. H. (2015). Yumokjeong Landslide: an investigation of progressive failure of a hillslope using the finite element method. *Landslides*, 12(5), 997-1005.
45. **Leshchinsky, B.**, Olsen, M. J., & Tanyu, B. F. (2015). Contour Connection Method for automated identification and classification of landslide deposits. *Computers & Geosciences*, 74, 27-38.
46. **Leshchinsky, B.** (2015). Bearing capacity of footings placed adjacent to c'- ϕ ' slopes. *Journal of Geotechnical and Geoenvironmental Engineering*, 141(6), 04015022.
47. Xie, Y., & **Leshchinsky, B.** (2015). MSE walls as bridge abutments: Optimal reinforcement density. *Geotextiles and Geomembranes*, 43(2), 128-138.
48. **Leshchinsky, B.**, Sessions, J., & Wimer, J. (2015). Analytical design for mobile anchor systems. *International Journal of Forest Engineering*, 26(1), 10-23.

Research Projects in Past 5 Years

As PI or co-PI, Leshchinsky has secured research funding of approximately 5 million USD from state, federal, and private sponsors.

| Title | Role | Agency | Date |
|----------------------------------|------|--------|------|
| At Oregon State University (OSU) | | | |

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| Long-Term Characterization of Horizontal Drain Efficiency for Landslide Mitigation | PI | ODOT | 2019 |
| RAPID: Quantifying Temporal Changes in Rockfall Magnitude-Frequencies for Well-Characterized Rock Slopes Shaken by the 2018 Alaska Earthquake | PI | NSF | 2019 |
| Characterizing the Performance of the Oldest Geogrid MSE Wall at the Devil's Punchbowl | PI | ODOT | 2018 |
| UAS Lidar Proof of Concept at Spangler Landslide | Co-PI | ODOT | 2018 |
| Influence of Rockfall on Corridor Mobility | Co-PI | PacTrans | 2018 |
| Seismic Induced Rockfall Hazard Prediction for Targeted Site Mitigation | Co-PI | ODOT | 2017 |
| Enhanced Assessment of Projected Landslide Activity Under Precipitation and Seismicity | PI | ODOT | 2017 |
| Operational Feasibility Analysis for Cable-Assisted Logging Systems: Equipment Stability and Soil Disturbance | Co-PI | USFS | 2016 |
| USFS Landslide Inventorying Tools using LiDAR and GIS | PI | USFS | 2016 |
| Transportation Corridor Resiliency in the Face of a Changing Climate | Co-PI | PacTrans | 2016 |
| Geoweb Reinforcement of Ballasted Railway Prisms | PI | Presto Geosystems | 2016 |
| Coastal Landslide and Bluff Retreat Monitoring for Climate Change Adaptation and Targeted Risk Assessment | Co-PI | ODOT | 2016 |