James P. Hambleton, Ph.D.

Department of Civil and Environmental Engineering
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I. Coordinates

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II. Biographical Details

Nationalities: American; Australian
Languages: English (native); Spanish (intermediate); Italian (elementary); French (elementary)
Familial status: Married with two children, born 2013 & 2015

III. Education

Doctor of Philosophy in Civil Engineering (Geomechanics) 2007 – 2010
University of Minnesota, Minneapolis, USA
Thesis: *Plastic Analysis of Processes Involving Material-Object Interaction*
Adviser: Prof. Andrew Drescher, GPA: 4.0 out of 4.0

Master of Science in Civil Engineering (Geomechanics) 2005 – 2006
University of Minnesota, Minneapolis, USA
Thesis: *Modeling Test Rolling in Clay*
Adviser: Prof. Andrew Drescher, GPA: 4.0 out of 4.0

Bachelor of Civil Engineering (Structural Engineering) 2002 – 2005
University of Minnesota, Minneapolis, USA
Honors: *High Distinction*, GPA: 3.91 out of 4.0

IV. Positions Held

Louis Berger Junior Professor	Northwestern University (NU)	2020 – present
Assistant Professor	Northwestern University	2016 – present
Conjoint (Honorary) Senior Lecturer	University of Newcastle, Australia (UoN)	2016 – present
Senior Lecturer	University of Newcastle, Australia	2011 – 2016
Casual Academic	University of Newcastle, Australia	2011
Post-doctoral Research Associate	University of Newcastle, Australia	2010 – 2011
Graduate Research Assistant	University of Minnesota (UMN)	2005 – 2010
Teaching Assistant	University of Minnesota	2006 – 2009
Engineering & Design Intern	Barr Engineering Co., Minneapolis	2005
Undergrad. Research Assistant	University of Minnesota	2003 – 2005
Educator & Technician	4H Center for Youth Development, UMN	2002 – 2005

V. Honors and Awards

Research Awards

Faculty Early Career Development Program (CAREER) Award, National Science Foundation (NSF)	2019
Arthur Casagrande Professional Development Award, American Society of Civil Engineers (ASCE)	2019
Nominee, Packard Foundation Fellowship for Science & Engineering, NU	2017
Best Paper Award, 6th Int. Young Geotechnical Engineers' Conference, Seoul, Korea	2017
Discovery Early Career Researcher Award, Australian Research Council (ARC)	2016
Excellent Paper Award, Int. Assoc. for Comp. Methods & Advances in Geomechanics (IACMAG)	2014
International Research Fellowship, NSF (offered; not accepted)	2010
Neville G. W. Cook Award for Innovative Research in Geomechanics, UMN	2010

Honors

Bright Spark Lecture, Int. Soc. Soil Mechanics & Geotech. Eng., IS-Cambridge, Univ. Cambridge	2022
U.S. National Society Delegate, 6th Int. Young Geotechnical Engineers' Conference, Seoul, Korea	2017
Invited Participant, Global Young Scientists Summit, Singapore (1 of 10 participants selected from all fields of science & engineering by the Australian Research Council)	2016
Faculty Representative, UoN 50th Anniv. Celebration, Parliament House, Canberra, Australia	2015
University Representative, Australian Academy of Technological Science & Engineering (ATSE) Clunies Ross Awards & "Wonder of Extreme Science," Brisbane, Australia	2015
New Faces of Civil Engineering Honoree, ASCE	2014
Simon & Claire Benson Award for Outstanding Undergraduate Achievement, UMN	2005

Teaching Awards

Alumnae of Northwestern University Award for Curriculum Development, NU	2019
Associated Student Government (ASG) Faculty and Administrator Honor Roll, NU	2018
Searle Fellow, Searle Center for Advancing Learning & Teaching, NU	2017
Nominee, Newcastle University Postgraduate Students Association Supervisor of the Year, UoN	2013

Undergraduate Scholarships

Gopher State Scholarship, UMN	2002 – 2004
WESTconsin Credit Union Scholarship	2003 – 2004
West Group Scholarship, Citizens' Scholarship Foundation of America	2002 – 2003
AnneMarie Foundation Scholarship	2002

VI. Editorial Roles

Editorial Board Member, *Canadian Geotechnical Journal*	2016 – present
Editorial Board Member, *Computers and Geotechnics*	2015 – 2022
Sentinel of Science Award Recipient (Publons.com)	2016
Co-editor, ARC Centre of Excellence for Geotechnical Science & Engineering Annual Report	2011 – 2015
Guest Co-editor, "CGSE special issue" of *Australian Geomechanics* (December 2014)	2014
Reviewer for over 20 international journals:	2010 – present

Computers and Geotechnics
Canadian Geotechnical Journal
Géotechnique
Géotechnique Letters

Proceedings of the Royal Society A
Journal of Geotechnical and Geoenvironmental Engineering (ASCE)
International Journal for Numerical and Analytical Methods in Geomechanics
Journal of Engineering Mechanics (ASCE)
Journal of Terramechanics
Granular Matter
Computational Mechanics
Finite Elements in Analysis and Design
Engineering and Computational Mechanics (ICE)
Soils and Foundations
International Journal of Physical Modelling in Geotechnics
Journal of Testing and Evaluation (ASTM)
International Journal of Rock Mechanics and Mining Sciences
Rock Mechanics and Rock Engineering
International Journal of Geomechanics (ASCE)
Journal of Applied Mechanics (ASME)
…

VII. Professional Memberships

American Society of Civil Engineers (ASCE) 2003 – present
- Geo-Institute (2009 – present)
- Engineering Mechanics Institute (2017 – present)

International Society for Terrain-Vehicle Systems 2016 – present
Deep Foundations Institute 2018 – present
International Association of Computational Mechanics 2013 – 2020
- U.S. Association for Computational Mechanics (2017 – 2020)
- Australian Association for Computational Mechanics (2013 – 2017)

American Rock Mechanics Association 2017 – 2019
Australian Geomechanics Society 2010 – 2017
Minnesota Geotechnical Society 2006 – 2010

VIII. Professional Qualifications

Passed Fundamentals of Engineering (FE) exam administered by NCEES 2007

IX. External Service

Committees

Chair, ASCE Geo-Institute Chicago Chapter 2020 – 2021
Co-chair, ASCE Geo-Institute Chicago Chapter 2019 – 2020
Treasurer, ASCE Geo-Institute Chicago Chapter 2018 – 2019
National Committee Member, Australian Geomechanics Society (AGS) 2016
Chair, Australian Geomechanics Society (AGS) Newcastle Chapter 2014 – 2015
Young Geotechnical Professional Representative, AGS Newcastle Chapter 2010 – 2013

Conference Organization

Member, Organizing Committee, 2022 Chicago Geotechnical Lecture Series	2022
Member, 2021 ASCE Convention Local Subcommittee, Chicago	2020 – 2021
Member, Organizing Committee, Geo-Congress 2020, Minneapolis	2018 – 2020
Member, Organizing Committee, 2019 Chicago Geotechnical Lecture Series	2019
Organizer, Mini-symposium on Advances in Terramechanics, Engineering Mechanics Institute Conference 2019, Caltech (Co-organized w/ D. Negrut & D. Goldman)	2019
Co-chair, Program Track: Geomechanics and Geomaterials, Engineering Mechanics Institute Conference 2019, Caltech	2019
Organizer, Mini-symposium on Geomechanics Modeling & Computation, 18th U.S. National Congress for Theoretical & Applied Mechanics (Co-organized w/ G. Buscarnera)	2018
Session Chair, U.S. Rock Mechanics/Geomechanics Symposium (invited 2 times)	2012, 2017
General Reporter, 6th Int. Young Geotechnical Engineers' Conference, Seoul, Korea	2017

Other External Service Roles

Presenter, Soil-Machine Interaction Laboratory (SMI Lab) demonstrations, NU 2017 – present

- NU's Annual Career Day for Girls
- Alumni Breakfast, Civil & Environ. Eng., NU
- NU/ETHS Teacher Workshop (w/ Prof. Giuseppe Buscarnera)
- Student Tours for CIV_ENV 195: Introduction to Civil & Environ. Eng., NU
- …

Invited Speaker, Glencoe Public Library	2019
Volunteer, DuPage Area STEM Expo	2019
Co-developer, "Robots and Dirt" tinkering program at Chicago Children's Museum	2018
Chapter Representative, ASCE Geo-Institute Chapter Leader Summit, Washington, D.C.	2018
Invited Speaker, Alumni Day, Baldwin-Woodville High School, Baldwin, Wisconsin, USA	2018
Invited Speaker, Northwestern Science Café	2017
Committee Member, AGS New South Wales Research Award	2014 – 2016
Faculty Representative, UoN "Open Day"	2015
Adviser, Engineers Without Borders (EWB) Challenge	2011 – 2012
Invited Speaker, ASCE Brown Bag Presentation, UMN	2008
Science Fair Judge, St. Paul area schools & Hopkins High School	2006 – 2007

X. Internal Service

Committees

Member, Graduate Admission Committee, Theoretical & Applied Mechanics, NU	2018 – present
Member, One Book One Northwestern Steering Committee	2021 – 2022
Member, Social Equity & Racial Justice Committee, Civil & Environ. Engineering, NU	2020 – 2021
Member, CEE Curriculum Committee	2020
Member, Regrouping Committee, Civil & Environ. Engineering, NU	2016 – 2017, 2020
Member, Strategic Planning Committee, Civil & Environ. Engineering, NU	2018 – 2019
Member, Faculty Search Committee, Civil & Environ. Engineering, NU	2017 – 2018
Member, GEN_ENG 205-2 Revision Committee, Civil & Environ. Engineering, NU	2018
Member, Curriculum Revision Committee, Civil & Environ. Engineering, NU	2017
Elected Member, Faculty Board, Faculty of Engineering & Built Environment, UoN	2014 – 2016
Member, Classroom Advisory Subcommittee, University Senate, UMN	2007 – 2009

Other Internal Service Roles

Faculty Adviser, Northwestern University's ASCE Chapter	2020 – 2021, 2022 – present
Faculty Adviser, Concrete Canoe (ASCE)	2022 - present
Co-leader, Data Science Research Networking Groups, Chicago: Addressing Urban Challenges as a Community	2020 – 2021
Area Coordinator, Geo, NU	2019 – 2020
Co-organizer, SPREE Center Seminar Series (w/ Prof. Ange Akono), NU	2018 – 2020
Faculty Adviser, 3D Printer Team, NASA's 3D-Printed Habitat Centennial Challenge	2018 – 2019
Panelist, Responsible Conduct of Research, NU	2018, 2020
Panelist, Fulbright Study/Research Awards, Office of Fellowships, NU	2019, 2020
Judge, Gotaas Award, McCormick School of Engineering, NU	2019, 2020
Invited Speaker, Midday@McCormick, Northwestern University	2019
Panelist, NSF CAREER Workshop, Office of Research Development, NU	2019
Panelist, CEE Research Discussion for NU Chapter of ASCE	2019
Speaker, McCormick Murphy Scholars Program	2018, 2019
Study Participant, Fostering and Assessing Creativity at NU	2018
Faculty Contact, Study: Promoting STEM Persistence through Social Connection (w/ Ryan Svoboda, Ph.D. Candidate, School of Education and Social Policy, NU)	2018
Invited Member, FEBE Strategy Development Workshop, UoN	2015
Instructor, University of Minnesota Supercomputing Institute, UMN	2007
Instructor, Outreach Mini-course, Civil Engineering, UMN	2006 – 2007

XI. Teaching and Advising

Teaching Development and Mentoring

Guest Speaker, Glass Half-Full: Online Synchronous Activities with a Face-to-Face Future, LINK	2021
Participant, Addressing the Needs of Underrepresented Graduate Students…, NU	2021
Presenter, TEACHxperts: Handwriting Online, NU	2021
Participant, Foundations of Online Teaching, NU	2020
Participant, Getting Beyond the Exam: Alternate Approaches to Assessment, NU	2020
Participant, Acknowledging and Addressing Systemic Racial Bias in STEM, NU	2020
Participant, Teaching Students Learning Strategies to Promote Self-Regulated Use, NU	2020
Mentor, Mentored Discussions of Teaching, CIRTL, NU (4 mentees observing EA2 classes)	2020
Mentor, Searle Teaching Certificate Program, NU (Mentee: Luo Wen, PhD student, TAM)	2019 – 2020
Participant, Insight XII Workshop: "Diversity, Equity, and Inclusion in McCormick," NU	2019
Participant, Faculty Open Classroom Initiative, NU (Observer for 3 courses)	2018 – 2019
Participant, Insight XI Workshop: "3D Printing and Maker Skills as Educational Tools," NU	2018
Participant, University Teaching Roundtable: "Choose Your Own Adventure," NU	2018
Participant, Workshop: "Fundamentals of Active and Collaborative Learning," NU	2017
Participant, Workshop: "Developing Effective Learning Objectives," NU	2017

Teaching Roles

Instructor, CIV_ENV 395: *Terramechanics*, NU (1 time)	2021
Instructor, GEN_ENG 205-2: *Engineering Analysis 2*, NU (5 times)	2017 – 2021
Instructor, CIV_ENV 455: *Plasticity and Limit Analysis*, NU (4 times)	2017 – 2021
Instructor, CIV_ENV 456: *Computational Geotechnics*, NU (3 times)	2018, 2020, 2022
Instructor, CIV_ENV 495: *Soil-Machine Interaction*, NU (1 time)	2019
Guest Speaker, CIV_ENV 195: *Introduction to Civil and Environmental Engineering*, NU (4 times)	2016 – 2020

Project Supervisor, CIVL 4660: *Final-Year Project*, UoN (9 times) 2012 – 2016
Instructor, GENG 1803: *Introduction to Engineering Practice*, UoN (5 times) 2011 – 2015
Substitute Lecturer, CIVL 2280: *Geomechanics I*, UoN (1 time) 2014
Substitute Lecturer & Tutor, CIVL 4830: *Stress & Finite Element Analysis*, UoN (2 times) 2011, 2012
Guest Lecturer, CE 5180: *Special Topics in Geomechanics*, UMN (1 time) 2009
Teaching Assistant, CE 4301: *Soil Mechanics II*, UMN (3 times) 2006, 2007, 2009

Post-doctoral Research Fellows

1. Dr. Nima Goudarzi, NU 2019 – 2021
2. Dr. Zhenhao Shi, NU 2016 – 2019

Ph.D. Students

1. Hyunjin Lee, NU 2023 (expected)
   Thesis: *Simulation of Self-burrowing Soft Robot for Autonomous Locomotion and Site Characterization*
2. Qinghao Yang, NU 2023 (expected)
   Thesis: *Analytical and Data-driven Models for Fundamental Processes in Soil-Machine Interaction*
3. Anastasia Nally, NU June 2022
   Thesis: *Assessing Optimal Modes of Soil Parameter Identification*
4. Zhefei Jin, NU March 2021
   Thesis: *Modeling Fundamental Processes in Soil-Machine Interaction*
5. Kourosh Todeshkejoei, UoN January 2019
   Thesis: *The Mechanics of Screw Piles in Clay*; Co-advisers: S. Stanier (Univ. Cambridge, formerly Univ. Western Australia), C. Gaudin (Univ. Western Australia), & R. Merifield (Douglas Partners, formerly UoN)

Co-advised Ph.D. Students

1. Manuel Herduin, The University of Western Australia June 2019
   Thesis: *Multidirectional Loading Characterisation on a Shared Suction Anchor for Wave Energy Converters*; Principal Adviser: C. Gaudin (Univ. Western Australia); Co-advisers: M. Cassidy (Univ. Melbourne, formerly Univ. Western Australia) & C. O'Loughlin (Univ. Western Australia)
2. Mason Crumpton, UoN August 2018
   Thesis: *Computational Methods in Limit Analysis*; Principal Adviser: A. Abbo (UoN); Co-advisers: A. Lyamin (UoN) & S. Sloan (UoN)
3. Anastasia Suchowerska, UoN July 2014
   Thesis: *Geomechanics of Multi-seam Longwall Coal Mining*; Principal Adviser: J. Carter (UoN); Co-adviser: R. Merifield (Douglas Partners, formerly UoN)

M.S. and M.Phil. Students

1. Jiachen (Jason) Guo, M.S., NU August 2020
   Thesis: *Modeling Soil-Plow Interaction Using Resistive Force Theory*
2. Dillon Self, M.S., NU December 2018
   Report: *Evaluation of Movements of Pile Foundations Caused by Adjacent Excavation Below Pile Tips* (Co-advised w/ R. Finno)

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3. Ting Lu, M.S., NU — June 2018
   Thesis: *Failure Envelopes for an Embedded Plate in Plastic Material*
4. Mircea Mihalache, M.S., NU — June 2018
   Thesis: *A Conditional Linear Diffusion Model for Efficient Avalanching Simulations*
5. Elaheh Kashizadeh, M.Phil., UoN — April 2017
   Thesis: *Theoretical and Experimental Analysis of the Cutting Process in Sand*;
   Co-advisers: S. Stanier (Univ. Cambridge, formerly Univ. Western Australia),
   D. White (Univ. Southampton, formerly Univ. Western Australia)

Visiting Scholars

1. Peng Wang, Visiting Ph.D. Student, Illinois Institute of Technology — 2020 – present
2. Nima Goudarzi, Visiting Ph.D. Student, Illinois Institute of Technology — 2017 – 2019
3. Junyue Tang, Visiting Ph.D. Student, Harbin Institute of Technology — 2017 – 2019

Current Undergraduate Research Assistants (NU)

1. Andy Granath — 2021 – present
2. Christopher Lee — 2021 – present

Previous Undergraduate Research Assistants (NU)

1. Max McCune — 2021 – 2022
2. Olivia Johansson — 2020 – 2021
3. Victor Limontitla — 2020 – 2021
4. Olisaeloka Anazonwu — 2017 – 2019, 2020 – 2021
5. Samuel Asa — 2017 – 2019, 2020 – 2021
6. Jesse Noss — 2019 – 2020
7. Junior Ndayikengurukiye — 2019
8. Biraj Parikh — 2019
9. Olisaeloka Anazonwu — 2017 – 2019
10. Adam Leung — 2018
11. Aaron Ahles — 2018
12. Finley Lau — 2017 – 2018
13. Kenneth Xuan — 2017 – 2018
14. Keith Languet — 2017 – 2018
15. Alex Toporek (Co-advised w/ G. Buscarnera) — 2017 – 2018
16. Mo Habib — 2017

Honors/Final-year Projects (UoN)

1. Anastasia Nally, *Analytical modelling of wheel mobility in sand* — 2016
2. David Graham, *Bearing capacity of foundations and pipelines on sand subjected to general loading* — 2016
3. Georgia Halvorsen, *Predicting the tractive performance of off-road vehicles based on force resultant bearing capacity models* — 2015
4. Adam Schouten, *Field studies on rutting induced by off-roach vehicles* — 2015
5. Brody Merritt, *Calculation of passive earth forces using finite element limit analysis* — 2015
6. Nicholas Souden, *Identification of flow patterns in fundamental earthmoving processes* — 2015
7. James Sargeant, *Characterisation of soil strength and stiffness from indentations tests* — 2015
8. Caitlin Le Bas, *Experimental analysis of slope failure in dry sand* — 2015

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9. Samuel Rooney, *Determination of material properties from indentation tests* 2014
10. Joshua Dever, *Assessing the strength of granular materials by drum rotation* 2014
11. Daniel Carter, *Capacity of mine safety berms* 2014
12. Mick Lambley, *Investigation of the relationship between installation torque and pullout capacity for helical anchors* 2013
13. Adam Hawkes, *Analysis of flow patterns induced by objects of varying shape moving through sand* 2013
14. Brendan Somerville, *Mesh generation for limit analysis based on rigid block mechanisms* 2013
15. Anthony Shaw, *Novel methods for evaluating the strength of granular material* 2012
16. Mark Fischer, *Analysis of soil-wheel interaction* 2012
17. Tristan Rossiter, *Investigation of ploughing process in dry sand* 2012
18. Michael Monroe, *Analysis of shear band propagation in slopes based on linear elastic fracture mechanics* 2012

XII. Media Features

1. Buffett Institute for Global Affairs (2021, October 25). Infrastructure and the Climate Crisis with Kate Newman and Jim Hambleton. Website: LINK. Podcast: https://bit.ly/3G03749
2. Geo-Institute of ASCE (2021, May 18). 25 Years of the Geo-Institute. youtu.be/OClw--9qIOs
3. Hambleton, J.P. (2021). Doing more with less: Arguments for low-tech innovation in engineering. *ASCE Illinois Section News*, Vol. 62, No. 1. (available on *Medium*: https://link.medium.com/bKe5L89lRfb)
4. Boas, S. (2020, November 12). Evanston builds stabilization project along Lake Michigan shorefront. *The Daily Northwestern*. https://youtu.be/8zaBMiokGHM
5. Gerasole, V. (2019, June 4). Elon Musk's O'Hare express tunnel plan still up in the air, with futuristic passenger pods replaced by Tesla electric cars. *CBS Chicago*. youtu.be/iQu37oR5nQ8
6. *ASCE News*. (2019, January 6). ASCE honors Hambleton's innovative research. https://news.asce.org/asce-honors-hambletons-innovative-research/
7. CEE Department, NU. (2018, August 24). Hambleton lab. youtu.be/Tcn2jjhXH58
8. WGN Radio. (2018, June 15). Northwestern University Civil and Environmental Engineering Professor James Hambleton is skeptical of Mayor Emanuel's plan for a high-speed rail. goo.gl/NrJWpP
9. Pletz, J. (2018, June 15). Can Elon Musk really deliver O'Hare express for less than a billion dollars? *Crain's Chicago Business*. goo.gl/1W1N5X
10. Wisniewski, M. (2018, June 14). Elon Musk's plans for O'Hare express draw skepticism. *Chicago Tribune*. goo.gl/ZocTEv
11. CBS Chicago. (2018, June 14). Making boring plans in Chicago. youtu.be/97qs5RBluuM
12. Willis, P. (2018, April). Lay of the Land. *Meteorological Technology International*, pp. 30-34. ukimediaevents.com/publication/0f41a128
13. Cummins, E. (2018, January 2018). The Montecito mudslide is a tragic reminder to respect our soil. *Popular Science*. popsci.com/montecito-mudslide-respect-soil
14. Faculty of Engineering and Built Environment, UoN. (2016, October 5). Engineering at the University of Newcastle. youtu.be/lqMyo-Hg2qo
15. Faculty of Engineering and Built Environment, UoN. (2016, July 26). Creating efficiencies in earth moving. youtu.be/oV1n55DVob4
16. Faculty of Engineering and Built Environment, UoN. (2016, July 26). Be part of the solution. youtu.be/ZRW78jquKAk
17. Scott, D. (2014, January 28). New Faces of Civil Engineering – Jim Hambleton. *ASCE News*. news.asce.org/new-faces-of-civil-engineering-jim-hambleton/
18. ASCE. (2013, November 21). James Hambleton: 2014 New Faces of Civil Engineering – Professional Edition. youtu.be/051bxR9KmsM

XIII. Publications

Books (Edited)

E1. Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Foundations, Soil Improvement, and Erosion*. GSP 315. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482780

E2. Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Engineering, Monitoring, and Management of Geotechnical Infrastructure*. GSP 316. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482797

E3. Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Modeling, Geomaterials, and Site Characterization*. GSP 317. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482803

E4. Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Geotechnical Earthquake Engineering and Special Topics*. GSP 318. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482810

E5. Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Geo-Systems, Sustainability, Geoenvironmental Engineering, and Unsaturated Soil Mechanics*. GSP 319. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482827

E6. Kavazanjian, E., Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: Biogeotechnics*. GSP 320. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482834

E7. Labuz, J. F., Theroux, B. A., Hambleton, J. P., Makhnenko, R., & Budge, A. S. (Eds.). (2020). *Geo-Congress 2020: University of Minnesota 68th Annual Geotechnical Engineering Conference*. GSP 321. Reston, VA: ASCE. https://ascelibrary.org/doi/book/10.1061/9780784482841

Book Chapters

B1. Munoz, J. J., Hambleton, J. P., & Sloan, S. W. (2018). R-adaptivity in limit analysis. In O. Barrera, A. Cocks & A. Ponter (Eds.), *Advances in Direct Methods for Materials and Structures* (pp. 73-84). New York: Springer.

Archived Preprints (Forthcoming Journal Papers)

U1. Jin, Z., Shi, Z., & Hambleton, J. P. Small-scale geotechnical testing using a six-axis robot. Submitted to *International Journal of Physical Modelling in Geotechnics*. engrXiv:10.31224/osf.io/jqytk

U2. Jin, Z., Tang, J., Umbanhowar, P. B., & Hambleton, J. P. Preparation of sand beds using fluidization. Submitted to *Acta Geotechnica*. engrXiv:10.31224/osf.io/u78t9

Published Journal Papers

J1. Martinez, A., DeJong, J., Akin, I., Aleali, A., Arson, C., Atkinson, J., Bandini, P., Baser, T., Borela, R., Boulanger, R., Burrall, M., Chen, Y., Collins, C., Cortes, D., Dai, S., DeJong, T., Del Dottore, E., Dorgan, K., Fragaszy, R., Frost, J. D., Full, R., Ghayoomi, M., Goldman, D, Gravish, N., Guzman, I., Hambleton, J., Hawkes, E., Helms, M., Hu, D., Huang, L., Huang, S., Hunt, C., Irschick, D., Lin, H., Lingwall, B., Marr, A., Mazzolai, B., McInroe, B., Murthy, T., O'Hara, K., Porter, M., Sadek, S., Sanchez, M., Santamarina, C., Shao, L., Sharp, J., Stuart, H., Henning Stutz, H., Summers, A., Tao, J., Tolley, M., Treers, L., Turnbull, K., Valdes, R., van Passen, L., Viggiani, G., Wilson, D., Wu, W., Yu, X., & Zheng, J. (2022). Bio-inspired geotechnical engineering: Principles, current work, opportunities and challenges. *Géotechnique*, 72(8), 687-705.

J2. Shi, Z., Huang, M., & Hambleton, J. P. (2021). Possibilities and limitations of the sequential kinematic method for simulating evolutionary plasticity problems. *Computers and Geotechnics*, 140, 104449.

J3. Shi, Z., Muir Wood, D., Huang, M., & Hambleton, J. P. (2021). Tay Creep: A multi-mechanism model for rate-dependent deformation of soils. *Géotechnique*, (accepted). https://doi.org/10.1680/jgeot.21.00084

J4. Shi, Z., & Hambleton, J. P. (2020). An *r-h* adaptive kinematic approach for 3D limit analysis. *Computers and Geotechnics*, 124, 103531.

J5. Shi, Z., Hambleton, J. P., & Buscarnera, G. (2019). Bounding surface elasto-viscoplasticity: A general constitutive framework for rate-dependent geomaterials. *Journal of Engineering Mechanics*, 145(3), 04019002. **(Editor's Choice)**

J6. Zhao, L., Gaudin, C., O'Loughlin, C. D., Hambleton, J. P., Cassidy, M. J., & Herduin, M. (2019). Suction caisson capacity in sand under inclined loading. *Journal of Geotechnical and Geoenvironmental Engineering*, 145(2), 04018107.

J7. Jin, Z., Li, W., Jin, C., Hambleton, J. P., & Cusatis, G. (2018). Anisotropic elastic, strength, and fracture properties of Marcellus shale. *International Journal of Rock Mechanics and Mining Sciences*, 109, 124-137.

J8. Hambleton, J. P., & Stanier, S. A. (2017). Predicting wheel forces using bearing capacity theory for general planar loads. *International Journal of Vehicle Performance*, 3(1), 71-88. **(Invited for special issue on "Mobility of Off-Road Vehicles")**

J9. Stanier, S. A., Dijkstra, J., Leśniewska, D., Hambleton, J. P., White, D. J., & Muir Wood, D. (2016). Vermiculate artefacts in image analysis of granular materials. *Computers and Geotechnics*, 72, 100-113.

J10. Hambleton, J. P., Sloan, S. W. (2016). A simplified kinematic method for 3D limit analysis. *Applied Mechanics and Materials*, 846, 342-347.

J11. Suchowerska, A. M., Carter, J. P., & Hambleton, J. P. (2016). Geomechanics of subsidence above single and multi-seam coal mining. *Journal of Rock Mechanics and Geotechnical Engineering*, 8(3), 304-313.

J12. Yu, S. B., Hambleton, J. P., & Sloan, S. W. (2015). Undrained uplift capacity of deeply embedded strip anchors in non-uniform soil. *Computers and Geotechnics*, 70, 41-49.

J13. Hambleton, J. P., Stanier, S. A., White, D. J., & Sloan, S. W. (2014). Modelling ploughing and cutting processes in soils. *Australian Geomechanics*, 49(4), 147-156.

J14. Hambleton, J. P., Stanier, S. A., Gaudin, C., & Todeshkejoei, K. (2014). Analysis of installation forces for helical piles in clay. *Australian Geomechanics*, 49(4), 73-79.

J15. Gaudin, C., O'Loughlin, C. D., Randolph, M. F., Cassidy, M. J., Wang, D., Tian, Y., Hambleton, J. P., & Merifield, R. S. (2014). Advances in offshore and onshore anchoring solutions. *Australian Geomechanics*, 49(4), 59-71.

J16. Yu, S. B., Hambleton, J. P., & Sloan, S. W. (2014). Analysis of inclined strip anchors in sand based on the block set mechanism. *Applied Mechanics and Materials*, 553, 422-427.

J17. Hambleton, J. P., & Sloan, S. W. (2013). A perturbation method for optimization of rigid block mechanisms in the kinematic method of limit analysis. *Computers and Geotechnics*, 48, 260-271.

J18. Hambleton, J. P., Buzzi, O., Giacomini, A., Spadari, M., & Sloan, S. W. (2013). Perforation of flexible rockfall barriers by normal block impact. *Rock Mechanics and Rock Engineering*, 46(3), 515-526. **(Invited paper, 1 of 14, 46th US Rock Mechanics/Geomechanics Symposium)**

J19. Hambleton, J. P., & Drescher, A. (2012). Approximate model for blunt objects indenting cohesive-frictional materials. *International Journal for Numerical and Analytical Methods in Geomechanics*, 36(3), 249-271. **(Excellent Paper Award, International Association for Computer Methods and Advances in Geomechanics)**

J20. Spadari, M., Giacomini, A., Buzzi, O., & Hambleton, J. P. (2012). Prediction of the bullet effect for rockfall barriers: a scaling approach. *Rock Mechanics and Rock Engineering*, 45(2), 131-144.

J21. Abbo, A. J., Lyamin, A. V., Sloan, S. W., & Hambleton, J. P. (2011). A C2 continuous approximation to the Mohr–Coulomb yield surface. *International Journal of Solids and Structures*, 48(21), 3001-3010.

J22. Hambleton, J. P., & Drescher, A. (2009). On modeling a rolling wheel in the presence of plastic deformation as a three- or two-dimensional process. *International Journal of Mechanical Sciences*, 51(11-12), 846-855.

J23. Hambleton, J. P., & Drescher, A. (2009). Modeling wheel-induced rutting in soils: Rolling. *Journal of Terramechanics*, 46(2), 35-47.

J24. Hambleton, J. P., & Drescher, A. (2008). Modeling wheel-induced rutting in soils: Indentation. *Journal of Terramechanics*, 45(6), 201-211.

Peer-reviewed Conference Papers*

C1. Hambleton, J. P., Nally, A., & Küçükyavuz, S. (2022). Optimal test methods for determining material parameters. In M. M. Rahman and M. Jaksa (Eds), *Proc. 20th International Conference on Soil Mechanics and Geotechnical Engineering*, Sydney, Australia, May 1-5, pp. 389-394.

C2. Lee, H., Ponkshe, N., Hambleton, J. P., & Van de Ven, J. D. (2022). Characterization of mechanical properties of a synthetic modeling clay used as a substitute for natural soils. *Proc. Geo-Congress 2022*, Charlotte, NC, USA, March 20-23, pp. 75-82.

C3. Yang, Q., & Hambleton, J. P. (2021). Data-driven modeling of granular column collapse. *Proc. Geo-Extreme 2021*, Savannah, GA, USA, November 7-10, pp. 79-88.

C4. Hambleton, J. P., & Stanier, S. A. (2019). Linking the installation response of screw piles to soil strength and ultimate capacity. *Proc. 44th Annual Conference on Deep Foundations*, Chicago, October 15-18, pp. 638-647.

C5. Nally, A., & Hambleton, J. P. (2019). Assessment of analysis techniques for multi-plate anchors in sand. *Proc. 44th Annual Conference on Deep Foundations*, Chicago, October 15-18, pp. 341-350.

C6. Nally, A., Shi, Z., & Hambleton, J. P. (2019). Optimal deformation modes for estimating soils properties. *Proc. GeoCongress 2019*, Philadelphia, USA, March 24-27, pp. 541-550.

C7. Jin, Z., & Hambleton, J. P. (2019). Simulation of the cutting process in softening and hardening soils. *Proc. GeoCongress 2019*, Philadelphia, USA, March 24-27, pp. 11-19.

C8. Hambleton, J. P. (2017). Earthmoving through the lens of geotechnical engineering. *Proc. 6th International Young Geotechnical Engineers' Conference (iYGEC6)*, Seoul, Korea, Sept. 17-22, pp. 88-89. **(iYGEC6 Best Paper Award)**

C9. Graham, D., Shi, Z., Hambleton, J. P., & Kouretzis, G. K. (2017). Limit loads for pipelines and cylinders partially embedded in frictional materials, Proc. *51st US Rock Mechanics/Geomechanics Symposium*, San Francisco, USA, June 25-28. Paper No. ARMA-2017-0897.

C10. Herduin, M., Gaudin, C., Cassidy, M., O'Loughlin, C., & Hambleton, J. P. (2016). Multi-directional load cases on shared anchors for arrays of floating structures, *Proc. 3rd Asian Wave and Tidal Energy Conference*, Singapore, Oct. 24-28.

C11. Todeshkejoei, C,. Hambleton, J. P., Stanier, S. A., & Gaudin, C. (2014). Modelling installation of helical anchors in clay. *Proc. 14th International Conference of the International Association for Computer Methods and Advances in Geomechanics*, Kyoto, Japan, Sept. 22-25, pp. 917-922.

C12. Kashizadeh, E., Hambleton, J. P., & Stanier, S. A. (2014). A numerical approach for modelling the ploughing process in sands. *Proc. 14th International Conference of the International Association for Computer Methods and Advances in Geomechanics*, Kyoto, Japan, Sept. 22-25, pp. 159-164.

C13. Suchowerska, A. M., Carter, J. P., & Hambleton, J. P. (2014). Prediction of roof collapse for rectangular underground openings. *Proc. AusRock 2014: Third Australasian Ground Control in Mining Conference*, Sydney, Australia, Nov. 5-6, pp. 367-374.

(continued on next page)

* Underlined name indicates speaker.

C14. Suchowerska, A. M., Carter, J. P., Hambleton, J. P., & Merifield, R. M. (2014). Effect of constitutive behaviour of strata on the prediction of subsidence above single-seam and multi-seam supercritical longwall panels. *Proc. 9th Triennial Conference on Mine Subsidence*, Pokolbin, Australia, May 11-13, Vol. 1, pp. 149-168.

C15. Hambleton, J. P., Buzzi, O., Giacomini, A., Spadari, M., & Sloan, S. W. (2012). Perforation of rockfall protection barriers by normal block impact. *Proc. 46th US Rock Mechanics/Geomechanics Symposium*, Chicago, USA, June 24-27, Vol. 2, pp. 1413-1419.

C16. Hambleton, J.P., & Sloan, S.W. (2011). Coordinate perturbation method for upper bound limit analysis. *Proc. 2nd International Symposium on Computational Geomechanics*, Cavtat-Dubrovnik, Croatia, Apr. 27-29, pp. 373-384.

C17. Hambleton, J. P., Sloan, S. W., Pyatigorets, A. V., & Voller, V. R. (2011). Lower bound limit analysis using the Control Volume Finite Element Method. *Proc. 13th International Conference of the International Association for Computer Methods and Advances in Geomechanics*, Melbourne, Australia, May 9-11, Vol. 1, pp. 88-93.

C18. Drescher, A., & Hambleton, J. P. (2010). Geotechnics and Terramechanics. *Proc. UMN 58th Annual Geotechnical Engineering Conference*, St. Paul, USA, Feb. 26, pp. 23-31.

C19. Hambleton, J. P., & Drescher, A. (2009). Asymptotics in soil-wheel interaction. *Proc. International Symposium on Computational Geomechanics*, Juan-les-Pin, France, Apr. 29-May 1, pp. 967-976.

C20. Hambleton, J. P., & Drescher, A. (2008). Soil damage models for off-road vehicles. *Proc. Geocongress 2008, Geosustainability and Geohazard Mitigation*, New Orleans, USA, Mar. 9-12, ASCE Geotechnical Special Publication No. 178, pp. 562-569.

C21. Hambleton, J. P., & Drescher, A. (2008). Mechanistic approach for relating test roller penetration to mechanical properties of bases and subgrades. *Transportation Research Board 87th Annual Meeting Compendium of Papers*, Washington, D.C., USA, Jan. 13-17.

C22. Hambleton, J. P., & Drescher, A. (2007). Modeling test rolling on cohesive subgrades. *Proc. International Conference on Advanced Characterisation of Pavement and Soil Engineering Materials*, Athens, Greece, June 20-22, Vol. 1, pp. 359-368.

C23. Eggen, M., Hambleton, J. P., Mantell, S. C., & Davidson, J. H. (2005). Mechanical behavior of random fiber composite perforated plates. *Proc. American Society for Composites 20th Technical Conference*, Philadelphia, USA, Sept. 7-9, pp. 84-96.

Published Reports

R1. Hambleton, J. P., & Drescher, A. (2008). *Development of Improved Test Rolling Methods for Roadway Embankment Construction, Final Report*. Minnesota Dept. of Transportation, Research Services Section, St. Paul, 288 pages. lrrb.org/pdf/200808.pdf

Special Publications

S1. Hambleton, J. P, Kouretzis, G. P, & Sloan, S. W. (2014). Introduction to the CGSE Special Issue of Australian Geomechanics. *Australian Geomechanics*, 49(4), 1-2. goo.gl/6iqTny

S2. Hambleton, J. P., Kashizadeh, E., Stanier, S. A. & White, D. J. (2013). Analysis of ploughing in sand. *ARC Centre of Excellence for Geotechnical Science and Engineering 2013 Annual Report*, pp. 94-95. goo.gl/fvC6sF

S3. Todeshkejoei, C., Hambleton, J. P., Gaudin, C., Stanier, S. A. & Merifield, R. M. (2013). Effects of installation on the capacity of helical anchors in clay. *ARC Centre of Excellence for Geotechnical Science and Engineering 2013 Annual Report*, pp. 65-66. goo.gl/do6ZAK

S4. Hambleton, J. P., White, D. J., Stanier, S. A., Merifield, R. M. & Krabbenhoft, K. (2011). Modelling evolutionary contact in ploughing and cutting of soils. *ARC Centre of Excellence for Geotechnical Science and Engineering 2011 Annual Report*, pp. 74-75. goo.gl/wWcZxt

S5. Drescher, A., & Hambleton, J. P. (2010). Modeling a rolling wheel on soil. *University of Minnesota Supercomputing Institute Research Bulletin*, 26(1), 1-4. goo.gl/NPgx57

Conference Presentations

P1. Shi, Z., Muir Wood, D., Huang, M., & Hambleton, J. P. (2021). Modeling rate sensitivity in soils with multiple viscous mechanisms. Biot-Bažant Conference on Engineering Mechanics and Physics of Porous Materials, Evanston, IL, June 1-3. https://doi.org/10.6084/m9.figshare.14766570.v1

P2. Hansen, S. K., Hambleton, J. P., & Lee, H. (2019). Quantifying predictive uncertainty as a function of calibration data quantity and model resolution using an adjoint state Monte Carlo technique. AGU Fall Meeting 2019, San Francisco, CA, December 9-13, No. H31C-08.

P3. Hambleton, J. P. (2019). High-efficiency models for soil-machine interaction. Engineering Mechanics Institute Conference 2019, Pasadena, CA, June 18-21.

P4. Jin, Z., Umbanhowar, P. B., & Hambleton, J. P. (2019). Reconstituting granular test beds by fluidization. Engineering Mechanics Institute Conference 2019, Pasadena, CA, June 18-21. (Poster)

P5. Hambleton, J. P., & Stanier, S. A. (2019). Linking the installation response of screw piles to soil strength and ultimate capacity. 1st International Symposium on Screw Piles for Energy Applications, Dundee, UK, May 27-28. https://doi.org/10.20933/100001123 **(Invited presentation)**

P6. Jin, Z., & Hambleton, J. P. (2018). Simulation of the cutting process in softening and hardening soils. 13th World Congress on Computational Mechanics, New York City, NY, July 22-27.

P7. Shi, Z., & Hambleton, J. P. (2018). Modeling large, plastic deformation processes in soils based on a simplified sequential kinematic method. 18th U.S. National Congress on Theoretical and Applied Mechanics, Chicago, IL, June 5-9.

P8. Jin, Z., & Hambleton, J. P. (2018). Simulation of the cutting process in softening and hardening soils. 18th U.S. National Congress on Theoretical and Applied Mechanics, Chicago, IL, June 5-9.

P9. Shi, Z., & Hambleton, J. P. (2017). An automated upper bound approach for three-dimensional limit analysis. Engineering Mechanics Institute Conference (EMI 2017), San Diego, USA, June 4-7, 2017.

P10. Hambleton, J. P., & Sloan, S. W. (2015). A simplified kinematic method for 3D limit analysis. 2nd Australasian Conference on Computational Mechanics, Brisbane, Australia, Nov. 30-Dec. 1. **(Keynote lecture)**

P11. Hambleton, J. P., & Kashizadeh, E. (2013). A numerical approach for modeling evolutionary problems in geomechanics. Engineering Mechanics Institute Conference, Evanston, IL, USA, Aug. 4-7.

P12. Hambleton, J. P., & Kashizadeh, E. (2013). Simulation of ploughing and cutting in soils by incremental limit analysis. 12th U.S. National Congress on Computational Mechanics, Raleigh, NC, USA, July 22-25.

P13. Spadari, M., Giacomini, A., Buzzi, O., & Hambleton, J.P. Application of dimensional analysis to predict the performance of rockfall barrier. EGU General Assembly, Vienna, Austria, April 22-27, p. 1108.

P14. Hambleton, J. P., & Drescher, A. (2008). On modeling a rolling wheel as a two- or three-dimensional process. Symposium on Advances in Contact Mechanics, Delft, The Netherlands, Oct. 22-24.

P15. Hambleton, J. P., & Drescher, A. (2008). Modeling processes involving soil-wheel interaction. 8th International Workshop on Bifurcations and Degradations in Geomaterials (IWBDG2008), Lake Louise, Canada, May 28-31.

P16. Hambleton, J. P., & Drescher, A. (2008). Modeling deep wheel penetration in frictional/cohesive soils. Inaugural International Conference of the Engineering Mechanics Institute, Minneapolis, USA, May 18-21.

XIV. Keynote, Plenary, and Invited Presentations

T1. Inspiring interest in geotechnics. IS-Cambridge: 10th International Symposium on Geotechnical Aspects of Underground Construction in Soft Ground, University of Cambridge, Cambridge, UK. June 27-28, 2022. https://doi.org/10.6084/m9.figshare.20346768.v1 **(Bright Spark Lecture)**

T2. Modeling soil-machine interaction: Evolving research on evolutionary plasticity problems. UC Davis, CA, April 29, 2021.
T3. Modeling soil-machine interaction: Evolving research on evolutionary plasticity problems. Warren Lecture, University of Minnesota, Minneapolis, MN, February 12, 2021.
T4. Fidelity, realism, and parameterization of models for soil-machine interaction. Machine-Ground Interaction Consortium (MaGIC), University of Wisconsin, Madison, WI, September 29, 2020.
T5. Geo-debate: Standard Penetration Testing vs Cone Penetration Testing. ASCE Virtual Technical Conference 2020, (virtual event), September 18, 2020. **(Invited moderator)**
T6. CPT vs. SPT Debate. Geo-Congress 2020, Minneapolis, MN, February 26, 2020. **(Invited moderator)**
T7. How communities shape infrastructure. 2019-2020 Data Science Research Networking Luncheon. Resilient Chicago Group. Northwestern University, Evanston, IL, January 17, 2020.
T8. When the earth gives way, for better or worse. Midday@McCormick, Northwestern University, August 6, 2019.
T9. Modeling soil-machine interaction for advances in civil construction and terrestrial robotics. 1st International Workshop on Bio-Inspired Geotechnics, Pacific Grove, CA, May 19-22, 2019. (Poster)
T10. When the earth gives way, for better or worse. Glencoe Public Library, Glencoe, IL, May 5, 2019.
T11. Modeling soil-machine interaction. University of Illinois Urbana-Champaign, April 26, 2019.
T12. Modeling plowing and cutting processes in soil. Machine-Ground Interaction Consortium (MaGIC), University of Wisconsin, Madison, November 14, 2017.
T13. Earthmoving through the lens of geotechnical engineering. 19th International Conference on Soil Mechanics & Geotechnical Engineering, Seoul, Korea, September 19, 2017. **(Invited plenary for iYGEC6 Best Paper Award)**
T14. Modeling evolutionary plasticity problems in geomechanics. Univ. Illinois at Chicago, April 21, 2017.
T15. Modeling plowing and cutting processes in soils. Queen's University, Kingston, Canada, April 5, 2017.
T16. When the earth gives way, for better or worse. Northwestern Science Café, Firehouse Grill, Evanston, IL, March 22, 2017.
T17. A perturbation method for optimizing collapse mechanisms in the kinematic method of limit analysis. Center for Sustainable Engineering of Geological and Infrastructure Materials (SEGIM), Northwestern University, Evanston, IL, March 1, 2017.
T18. Mobility analysis based on bearing capacity theory for general planar loads. The University of Western Australia, Perth, Australia, April 29, 2016.
T19. Modeling evolutionary plasticity problems in geomechanics, Headquarters of Caterpillar, Inc., Peoria, IL, May 2, 2016.
T20. Modeling evolutionary plasticity problems in geomechanics, Northwestern University, Evanston, IL, February 10, 2016.
T21. Ploughing and cutting in soils: Modelling and applications. The University of Western Australia, Perth, Australia, November 15, 2013.
T22. Modelling processes involving material-object interaction. Headquarters of Caterpillar, Inc., Peoria, IL, June 29, 2012.
T23. Modelling the evolutionary problem of an object interacting with a plastically deforming surface. The University of Sydney, Sydney, Australia, October 13, 2011.
T24. Modelling the evolutionary problem of an object interacting with a plastically deforming surface. CSIRO, Australian Resources Research Centre, Perth, Australia, August 12, 2011.
T25. A coordinate perturbation method for optimizing collapse mechanisms in upper bound limit analysis. CSIRO, Earth Science & Resource Engineering, Melbourne, Australia, May 13, 2011.
T26. Incremental approach for modeling indentation and rolling processes on rigid-plastic material. Cook Award Lecture, Department of Civil Engineering, Univ. Minnesota, Minneapolis, May 7, 2010.

T27. On three- and two-dimensional analysis of a wheel rolling on a plastic surface. Institute for Geotechnical Engineering, ETH Zurich, Switzerland, April 27, 2009.
T28. Theoretical models for machine-soil interaction. Naval Research Laboratory, Stennis Space Center, February 9, 2009.
T29. Modeling a wheel on an elastoplastic surface. Itasca Consulting Group, Minneapolis, USA, October 14, 2008.
T30. Modeling soil-wheel interaction. IWBDG2008 Post Workshop at headquarters of Caterpillar, Inc., Peoria, June 2, 2008.
T31. Research and reflections of a geomechanics graduate student. ASCE Brown Bag Presentation, Minneapolis, USA, April 21, 2008.

XV. External Funding

1. *HDR DSC: Collaborative Research: The Metropolitan Chicago Data Science Corps (MCDC): Learning from data to support communities*
   Investigators: Suzan van der Lee (Principal Director) + 78 project personnel and partner organizations
   Funding body: National Science Foundation
   Funding awarded: $1.5M (approx.)
   Funding period: 2021 – 2024
2. *Designing sustainable and just communities: Developing an undergraduate curriculum around innovation, climate action and social justice*
   Investigators: Kimberly Gray (Principal Investigator), Amanda Stathopoulos (co-PI) + 7 project personnel
   Funding body: VentureWell
   Funding awarded: $30,000
   Funding period: 2019 – 2021
3. *Embassy 2050: Future innovations in embassy planning, design, construction and operation*
   Investigators: Kimberly Gray (Principal Investigator) + 10 project personnel
   Funding body: Department of State (via Krueck & Sexton Architects, LTD)
   Funding awarded: $400,000 (approx.)
   Funding period: 2020 – 2022
4. *Optimizing bridge abutment slope protection at stream crossings*
   Investigators: James Hambleton (Principal Investigator), Gianluca Cusatis (Co-PI), and Nima Goudarzi (Post-doctoral Researcher)
   Funding body: Wisconsin Highway Research Program
   Funding awarded: $80,000
   Funding period: 2019 – 2021
5. *CAREER: Modeling soil-machine interaction for advances in civil construction and terrestrial robotics*
   Investigators: James Hambleton (Principal Investigator)
   Funding body: National Science Foundation
   Funding awarded: $500,000
   Funding period: 2019 – 2024

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6. *EFRI C3 SoRo: Strong soft robots—multiscale burrowing and inverse design*
   Investigators: James Hambleton (Principal Investigator)
   Funding body: National Science Foundation via University of Minnesota; Subcontract for NSF Award EFMA-1742849; $1,977,501; PI: Timothy Kowalewski; Co-PIs: Sridhar Kota, Emmanuel Detournay, James Van de Ven & Chris Ellison
   Funding awarded: $76,652
   Funding period: 2018 – 2022
7. *Synthetic energy absorbing composite for improved track performance*
   Investigators: Buddhima Indraratna (Chief Investigator), Cholachat Rujikiatkamjorn (Chief Investigator), Matthew Coop (Partner Investigator), James Hambleton (Partner Investigator)
   Funding body: Australian Research Council, Discovery Project
   Funding awarded: $251,962 (AUD)
   Funding period: 2018 – 2020
8. *Unlocking efficiencies in earthmoving for future infrastructure: Modeling plowing and cutting processes in soils*
   Investigators: James Hambleton (Principal Investigator), Paul Umbanhowar (Co-PI)
   Funding body: National Science Foundation
   Funding awarded: $191,205 (USD)
   Funding period: 2017 – 2019
9. *Innovating earthmoving mechanics for next-generation infrastructure*
   Investigators: James Hambleton (Chief Investigator)
   Funding body: Australian Research Council, Discovery Early Career Researcher Award
   Funding awarded: $354,225 (AUD) ARC + $358,585 (AUD) institutional support
   Funding period: 2016 – 2018
   Notes: Relinquished upon relocating to the US
10. *Harnessing the power of oceans: anchors for floating energy devices*
    Investigators: Christophe Gaudin (Chief Investigator), Mark Cassidy (Chief Investigator), Conleth O'Loughlin (Chief Investigator), James Hambleton (Chief Investigator)
    Funding body: Australian Research Council, Discovery Project
    Funding awarded: $571,800 (AUD)
    Funding period: 2015 – 2017
11. *Dynamic shear band propagation mechanisms of tsunamigenic landslides*
    Investigators: James Hambleton (Principal Investigator), Alexander Puzrin (Host)
    Funding body: National Science Foundation, International Research Fellowship Program
    Funding request: $144,160 (USD)
    Funding period: 2010 – 2012
    Notes: Offered; not accepted

XVI. Internal Funding (≥ $5,000)

1. *Modeling Soil-Machine Interaction for Advances in Civil Construction and Terrestrial Robotics*
   Investigators: James Hambleton, NU (Principal Investigator)
   Funding body: COVID-19 Research Recovery Grants Program, Office of the Provost, NU
   Funding awarded: $50,000
   Funding period: 2022-2023

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2. *Freeze dryer equipment for supporting the latest discoveries in the science of porous materials*
   Investigators: Alessandro Rotta Loria, NU (Principal Investigator)
   James Hambleton, NU (Co-PI)
   Giuseppe Buscarnera, NU (Co-PI)
   Funding body: The Alumnae of Northwestern University Grants Program, NU
   Funding awarded: $5,000
   Funding period: 2021
3. *Sensing material properties as nature intends*
   Investigators: James Hambleton, NU (Principal Investigator)
   Simge Küçükyavuz, NU (Co-PI)
   Funding body: Center for Engineering Sustainability and Resilience, NU
   Funding awarded: $60,000
   Funding period: 2019 – 2021
4. *Calibrated model informativity in highly underdetermined hydrologic systems*
   Investigators: James Hambleton, NU (Principal Investigator at NU)
   Scott Hansen, Ben-Gurion University (Principal Investigator at BGU)
   Funding body: Zuckerberg Institute for Water Research & NU Center for Water Research
   Funding awarded: $36,000 (NU funding of $19,000 + BGU funding of $17,000)
   Funding period: 2019
5. *Inspiring first-year engineering students to enjoy basic mechanics*
   Investigators: James Hambleton, NU (Principal Investigator)
   Funding body: Alumnae of Northwestern University, Curriculum Development Award
   Funding awarded: $12,500
   Funding period: 2019
6. *Research Fellowship for Prof. Alexander Puzrin, ETH Zürich, Switzerland*
   Investigators: James Hambleton, NU (Host)
   Alexander Puzrin, ETH Zürich (Visiting Research Fellow)
   Funding body: University of Newcastle, International Research Visiting Fellowship
   Funding awarded: $6,861 (AUD)
   Funding period: 2016

XVII. Minor Grants and Awards (< $5,000)

1. Travel Grant, 1st International Workshop on Bio-Inspired Geotechnics (funded by NSF) 2019
2. Travel Award, Geo-Institute, ASCE (awarded as U.S. Delegate for iYGEC6) 2017
3. Travel Award, NHERI Workshop, UC Davis, May 12, 2017 2017
4. Travel Award, National Research Foundation Singapore & UoN (awarded as Invited Participant to the Global Young Scientists Summit, Singapore) 2016
5. Travel Grant, Faculty of Engineering and Built Environment, UoN (awarded 4 times; see below) 2015
6. Travel Grant, Faculty of Engineering and Built Environment, UoN 2014
7. Travel Grant, Faculty of Engineering and Built Environment, UoN 2013
8. Travel Grant, Faculty of Engineering and Built Environment, UoN 2012
9. Minnesota Supercomputing Institute Travel Award (awarded 3 times; see below) 2009
10. GAPSA Scholarly Travel Grant, UMN 2009
11. Sommerfeld Travel Grant, UMN (awarded 2 times; see below) 2009
12. Minnesota Supercomputing Institute Travel Award 2008
13. IWBDG2008/Caterpillar Travel Award 2008

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14. Center for Transportation Studies Travel Award, UMN 2008
15. Sommerfeld Travel Grant, UMN 2008
16. Minnesota Supercomputing Institute Travel Award 2007