

RESUME

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Birthdate: April 3, 1971
Birthplace: Haifa, Israel
Marital status: Married, three children
Military status: Major, Israeli Air Force (reserve duty)

ACADEMIC DEGREES

Ph.D. (12/2006): Technion–IIT, Faculty of Civil and Environmental Engineering.
M.Sc. (6/2000): Tel Aviv University, Faculty of Management (*cum laude*).
B.Sc. (4/1993): Technion–IIT, Faculty of Civil Engineering (*cum laude*).

ACADEMIC APPOINTMENTS

a. Technical University of Denmark

3/16–present: Associate Professor, Department of Civil Engineering.

b. Technion-IIT

3/09–2/16: Assistant Professor, Faculty of Civil and Environmental Engineering (tenured from 3/15).

3/01–9/03: Teaching Assistant, Faculty of Civil Engineering.

c. University of Minnesota

7/15–8/15: J.S. Braun / Braun Intertec Visiting Associate Professor, Department of Civil, Environmental, and Geo-Engineering.

d. University of Pisa

1/09–2/09: Visiting Researcher, Department of Civil Engineering.

e. Purdue University

12/06–12/08: Postdoctoral Researcher, School of Civil Engineering.

PROFESSIONAL EXPERIENCE

- 4/99–12/17: Owner, founder and manager of E.L. Engineering, a consulting firm with the following core activities: pavement design, geotechnical design, and on-site supervision of construction work. Major clients (Israeli): Department of Transportation, Department of Defense, Aviation Administration, Air-Industries, Port Authority, and Tel Aviv Municipality.
- 4/93–4/99: Engineering officer, Israeli Air Force, Civil Engineering Division. Key roles: project execution engineer, member of the project management branch, member of the runway staff. Main activities: management of construction projects, management of design projects, physical design of airfield infrastructure (runways, taxiways, parking aprons), project cost-estimation, site supervision.
- 1/93–3/93: Industrial maintenance electrician, Elite Candy Factory, Nazareth, Israel. Main activities: assembly of electrical distribution boards, fine-tuning of sensory gear (lasers, metal detectors), general soldering.

RESEARCH INTERESTS

1. Pavement mechanics.
2. Inverse analysis of in situ pavement properties.
3. Constitutive modeling of asphalt concrete.
4. Smart pavements and embedded sensing.

TEACHING EXPERIENCE

a. Technical University of Denmark (*Spring 2016 and onward*)

1. Basic course in road pavements (11450) [UG]
2. Highway Pavements (11451) [G]
3. Basic Course in Traffic and Roads (42872) [UG, pavements part]

b. Technion-IIT (*Spring 2009 to Winter 2015-2016*)

4. Introduction to highway design and pavements (014718) [UG, pavements part]
5. Introduction to pavement design (014731) [UG]
6. Air transportation (014717) [UG, pavements part]
7. Final project in pavement design (014724) [UG]
8. Fundamentals of rigid pavement design (016712) [G+UG]
9. Advanced asphalt pavement topics (019702) [G]
10. Laboratory for pavement materials 1 (019704) [G]
11. Laboratory for pavement materials 2 (019705) [G]

c. Tongji University (*Fall 2012*)

12. Airport planning and design [UG, pavements part].
13. Airport engineering [G, pavements part].

UNIVERSITY ACTIVITIES

a. Technical University of Denmark

1/17–present: Railtech DTU coordination group member.

5/16–present: Ph.D. coordination group member, Department of Civil Engineering.

b. Technion-IIT

1/13–3/16: Adopted by the Washington DC Chapter of the American Technion Society (ATS) for promoting the Technion and in particular the Faculty of Civil and Environmental Engineering. Activities include periodic presentations to ATS visitors, participation in trimonthly video logs, and hosting of donors.

10/10–1/16: Faculty council academic secretary, Faculty of Civil and Environmental Engineering.

10/10–3/16: Safety committee member, Division of Transportation and Geo-Information Engineering.

10/09–3/16: Faculty undergraduate teaching committee member, Faculty of Civil and Environmental Engineering.

10/09–3/16: Academic secretary and teaching committee member, Division of Transportation and Geo-Information Engineering.

PUBLIC PROFESSIONAL ACTIVITIES

a. Editorial board member

3/16–present: *Road Materials and Pavement Design* (Taylor & Francis).

2/15–present: *KSCE Journal of Civil Engineering* (Journal of the Korean Society of Civil Engineers, Springer).

5/13–present: *Advances in Civil Engineering Materials* (ASTM).

1/12–12/15: *International Journal of Transportation Science and Technology* (Elsevier).

b. Membership in international committees

1/11–present: Testing and Characterization of Sustainable Innovative Bituminous Materials and Systems, Technical Committee 237-SIB, International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM).

7/09–12/10: Advanced Testing and Characterization of Bituminous Materials, Technical Committee 206, International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM).

4/09–present: Characteristics of Bituminous Paving Mixtures to Meet Structural Requirements, AFK50, Transportation Research Board (TRB), National Academy of Science.

1/05–present: Constitutive Modeling of Asphaltic Mixes, Working Group No. 3, International Society for Asphalt Pavements (ISAP).

c. Referee for journals

1. Advances in Civil Engineering (Hindawi)
2. Advances in Civil Engineering Materials (ASTM).
3. Construction & Building Materials (Elsevier).
4. International Journal of Pavement Engineering (Taylor & Francis).
5. International Journal of Transportation Science and Technology (Elsevier).
6. Journal of Geotechnical and Geoenvironmental Engineering (ASCE).
7. Journal of Materials in Civil Engineering (ASCE).
8. Journal of Testing and Evaluation (ASTM).
9. Journal of the Association of Asphalt Paving Technologists (AAPT).
10. Journal of Transportation Engineering, Part B: Pavements (ASCE).
11. KSCE Journal of Civil Engineering (Springer).
12. Materials and Structures (Springer).
13. Measurement (Elsevier).
14. Mechanics of Time-Dependent Materials (Springer).
15. Road Materials and Pavement Design (Taylor & Francis).
16. Transportation Research Record (TRB).

d. Expert panel appointments

1. Member of Ph.D. examination committee for Shmuel Pinkert (Technion-IIT, 2/12).
2. Chair of Ph.D. assessment committee for Asmus Skar (DTU, 3/17)
3. Chairperson for Ph.D. defense of Chiara Latini (DTU, 1/18)

MEMBERSHIP IN PROFESSIONAL SOCIETIES

- 2009–present: International Union of Laboratories and Experts in Construction Materials, Systems and Structures (RILEM).
- 2007–present: Fellows Alumni Association, International Road Federation (IRF).
- 2005–present: The International Society for Asphalt Pavements (ISAP).
- 2003–2004: International Concrete Repair Institute (ICRI).
- 2002–present: The Israel Society for Theoretical and Applied Mechanics (ISTAM).
- 2002–2005: The Israeli Association of Construction and Infrastructure.
- 1993–present: Registered civil engineer in Israel.

FELLOWSHIPS, AWARDS, AND HONORS

a. Technion-IIT

- 2013: Faculty award for teaching excellence – A. Arenson Prize. Granted based on high student rankings in teaching transportation-related courses during preceding spring and winter semesters.
- 2012: Technion award for teaching excellence – top 4% of entire university based on student ranking (spring semester, Introduction to Pavement Design).
- 2007: International Road Federation (IRF) – Executive Fellowship Award (\$15k).
- 1992: The Esther and Mordechai Rubinstein Prize for Excellence in Engineering Economics course, Faculty of Civil Engineering.
- 1992: The Yitzhak Alpan Prize for Excellence in Geomechanics course, Faculty of Civil Engineering.

INSTRUCTION AND SUPERVISION

Ph.D.

Completed dissertations

1. Renato Bacci (2010), “Visco-elastoplastic Characterization of Bituminous Mixtures in Indirect Tension,” University of Pisa, Italy (primary advisor: M. Losa).

Dissertations in progress

2. Tulika Bose, “Railway Substructure Systems Based on Asphalt,” Technical University of Denmark (primary advisor: V. Zania).

M.Sc.

Completed theses

1. Nir Michaeli (2015), “Viscoelastic Characterization of Asphalt-Aggregate Mixes with the Indirect Tensile Apparatus,” Technion–IIT, Israel. Work received the Golan Family award for research excellence in the field of transportation infrastructure.
2. Oded Drori (2017), “Characterization of Moving Surface Loads with Buried Accelerometers,” Technion–IIT, Israel.
3. Alexander S. Molin (2017), “Assessment of Layered Elastic Theory as a Pavement Model,” University of Bologna, Italy (primary advisor: C. Sangiorgi).

M.E. and B.Sc.

Completed theses

1. Dori Alkalay (2015), “Assessing the Ability of a Multilayered Elastic Model to Reproduce the Mechanical Response of an Asphalt Pavement,” Technion–IIT.
2. Britt Marie Lekven Christensen (2016), “A Comparison of Traffic Speed Deflectometer and Falling Weight Deflectometer Data,” Technical University of Denmark (co-advisor: M. Pettinari).
3. Andreas V. Bachmann and Jacob E. Cronholm (2017), “Mechanical Characterization of New Asphalt Concrete for Pavements with reduced Transport Emissions,” Technical University of Denmark (co-advisor: M. Pettinari).

RESEARCH GRANTS

a. Technion-IIT

- 2010: \$200k (Co-PI) “Comparative Study of the Performance of Dense graded vs. S-Graded Asphalt Mixtures,” Israeli National Roads Company (with J. Uzan, PI, and A. Sidess, Co-PI).
- 2011: \$40k (PI) “Advanced Mechanical Characterization of Unbound Granular Pavement Materials,” German-Israeli Foundation for Scientific Research and Development - Young Scientists' Program.
- \$65k (PI) “The Vacuum Sealing Method for Determination of Bulk Density of Compacted Asphalt Mixtures,” Israeli National Roads Company.
- \$500k (PI) “Warm Mix Asphalt – Phase I,” Israeli National Roads Company (initial collaboration with Aram Engineers Ltd).
- \$200k (PI) “Prototype Development of Smart Pavement Sensors,” Israeli National Roads Company.
- 2012: \$67k (PI) “Changeover from Marshall to Gyrotory Compaction – Phase I,” Israeli National Roads Company.
- 2015: \$800k (PI) “Development of Smart Pavement Sensors – 2nd Generation Wisdom Stone,” Israeli National Roads Company (funding awarded).

b. Technical University of Denmark

- 2016: \$290k (WP Leader) “Advanced and Widely Available Pavement Assessment Tools for Infrastructure Evaluation,” with Innovation Fund Denmark and Dynatest Ltd.
- \$1,380k (Co-leader in two WPs) “Road2Rails,” with Innovation Fund Denmark, Atkins Consulting, Arkil Construction, Banedanmark, and the Danish Technological Institute.
- 2017: \$27k (PI) “Monitoring Seabed Subsidence and Identifying Reservoir Drawdown Zone with Optical Fiber Sensing – A Feasibility Study,” The Danish Hydrocarbon Research and Technology Center (with I. Orozova-Bekkevold and K. Nielsen).

PUBLICATIONS

Author names in *italic* font style indicate either *students*, *research assistants*, *industry people*, or *postdocs*; author names in normal font style indicate other academics.

Theses

1. Levenberg, E. (1999), “Testing ‘Maof’s’ Market Efficiency Using Neural Networks,” M.Sc. Thesis, Tel Aviv University, Faculty of Management, Advisors: Prof. Avner Kalay and Dr. Moshe Leshno.
2. Levenberg, E. (2006), “Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing,” Ph.D. Dissertation, Technion-IIT, Faculty of Civil and Environmental Engineering, Advisor: Prof. Jacob Uzan.

Refereed papers in professional journals

1. Uzan, J. and Levenberg, E. (2001), “Strain Measurements in Asphalt Concrete Specimens towards the Development of a Fracture Model,” *International Journal of Pavement Engineering*, 2(4), 243–258.
2. Levenberg, E. and Uzan, J. (2004), “Quantifying the Confidence Levels of Deformation Measurements in Asphalt Concrete,” *Journal of Testing and Evaluation (ASTM)*, 32(5), 358–365.
3. Levenberg, E. and Uzan, J. (2004), “Triaxial Small-Strain Viscoelastic-Viscoplastic Modeling of Asphalt Aggregate Mixes,” *Mechanics of Time-Dependent Materials*, 8(4), 365–384.
4. Uzan, J. and Levenberg, E. (2007), “Advanced Testing and Characterization of Asphalt Concrete Materials in Tension,” *International Journal of Geomechanics (ASCE)*, 7(2), 158–165.
5. Levenberg, E. and *Shah, A.* (2008), “Interpretation of Complex Modulus Test Results for Asphalt-Aggregate Mixes,” *Journal of Testing and Evaluation (ASTM)*, 36(4), 326–334.
6. Levenberg, E. (2009), “Viscoplastic Response and Modeling of Asphalt-Aggregate Mixes,” *Materials and Structures (RILEM)*, 42(8), 1139–1151.
7. Levenberg, E. (2011), “Smoothing Asphalt Concrete Complex Modulus Test Data,” *Journal of Materials in Civil Engineering (ASCE)*, 23(5), 606–611.
8. Levenberg, E. and Uzan, J. (2012), “Exposing the Nonlinear Viscoelastic Behavior of Asphalt-Aggregate Mixes,” *Mechanics of Time-Dependent Materials*, 16(2), 129–143.
9. Levenberg, E. (2012), “Inferring Pavement Properties using an Embedded Accelerometer,” *International Journal of Transportation Science and Technology*, 1(3), 229–246.
10. Levenberg, E. (2013), “Inverse Analysis of Viscoelastic Pavement Properties using Data from Embedded Instrumentation,” *International Journal for Numerical and Analytical Methods in Geomechanics*, 37(9), 1016–1033.
11. Levenberg, E. and *Michaeli, N.* (2013), “Viscoelastic Characterization of Asphalt-Aggregate Mixes in Diametral Compression,” *International Journal of Road Materials and Pavement Design*, 14(S1), 105–119.
12. Levenberg, E. (2013), “Analysis of Pavement Response to Subsurface Deformations,” *Computers and Geotechnics*, 50, 79–88.
13. Levenberg, E. and *Manevich, A.* (2013), “Determination of Bulk Volume of Asphalt Specimens with Image-based Modeling,” *International Journal of Transportation Science and Technology*, 2(1), 1–13.
14. Levenberg, E. (2013), “Direct Estimation of Air Void Content from Gyrotory Compaction History,” *International Journal of Recent Trends in Civil Engineering & Technology*, 3(1), 14–20.

15. Varma, S., Kutay, M.E., and Levenberg, E. (2013), “Viscoelastic Genetic Algorithm for Inverse Analysis of Asphalt Layer Properties from Falling Weight Deflections,” *Transportation Research Record: Journal of the Transportation Research Board (TRB)*, 2369, 38–46.
16. Faturechi, R., Levenberg, E., and Miller-Hooks, E. (2014), “Evaluating and Optimizing Resilience of Airport Pavement Networks,” *Journal of Computers and Operations Research*, 43, 335–348.
17. Levenberg, E. (2014), “Viscoelastic-Viscoplastic Characterization of Unbound Granular Material,” *Advances in Civil Engineering Materials (ASTM)*, 3(1), 21–42.
18. Levenberg, E. and Garg, N. (2014), “Estimating the Coefficient of At-Rest Earth Pressure in Granular Pavement Layers,” *Transportation Geotechnics*, 1(1), 21–30.
19. Levenberg, E. (2014), “Estimating Vehicle Speed with Embedded Inertial Sensors,” *Transportation Research Part C*, 46, 300–308.
20. Uchida, S., Levenberg, E., and Klar, A. (2015), “On-Specimen Strain Measurement with Fiber Optic Distributed Sensing,” *Measurement*, 60, 104–113.
21. Levenberg, E. (2015), “Viscoelastic Tension-Compression Nonlinearity in Asphalt Concrete,” *Journal of Materials in Civil Engineering (ASCE)*, 27(12), 04015048(1–9).
22. Levenberg, E. (2015), “Intrinsic Roughness Mitigation of Pavements on Expansive Soils – An Analytic Investigation,” *International Journal of Pavement Research and Technology (CSPE)*, 8(3), 167–171.
23. Levenberg, E. (2015), “Modeling Asphalt Concrete Viscoelasticity with Damage and Healing,” *International Journal of Pavement Engineering*, 18(9), 811–823.
24. Levenberg, E. (2015), “Backcalculation with an Implanted Inertial Sensor,” *Transportation Research Record: Journal of the Transportation Research Board (TRB)*, 2525, 3–12.
25. Levenberg, E. (2016), “Viscoelastic Characterization of Asphalt Concrete in Diametral Tension-Compression,” *Journal of Materials in Civil Engineering (ASCE)*, 28(1), 04015073(1–9).
26. Hamam, T., Levenberg, E., and Zelnik-Manor, L. (2016), “Development of an Optical Displacement Transducer for Routine Testing of Asphalt Concrete,” *Journal of Materials in Civil Engineering (ASCE)*, 28(9), 04016066.
27. Klar, A., Uchida, S., and Levenberg, E. (2016), “In Situ Stiffness Profiling using High Resolution Fiber Optic Distributed Sensing,” *Journal of Geotechnical and Geoenvironmental Engineering (ASCE)*, 142(8), 04016032(1–9).
28. Levenberg, E., Miller-Hooks, E., Asadabadi, A., and Faturechi, R. (2016), “Resilience of Networked Infrastructure with Evolving Component Conditions,” *Journal of Computing in Civil Engineering (ASCE)*, 31(3), 2–14, 04016060(1–9).

29. *Madsen, S.S. and Levenberg, E.* (2017), “Dynamic Backcalculation with Different Load-Time Histories,” *Road Materials and Pavement Design*, DOI: 10.1080/14680629.2017.1307263.
30. *Stern, Y., London, Y., Preter, E., Antman, Y., Diamandi, H.H., Silbiger, M. Adler, G., Levenberg, E., Shalev, D., and Zadok, A.* (2017), “Brillouin Optical Correlation Domain Analysis in Composite Material Beams,” *Sensors*, 17(2266), 2–14.
31. *Bose, T., Levenberg, E., Zania, V.* (2018), “Analyzing Track Responses to Train Braking,” *Journal of Rail and Rapid Transit*, DOI: 10.1177/0954409718761242.

Accepted (in press)

32. *Levenberg, E., Pettinari, M., Baltzer, S. and Christensen, B.M.L.* “Comparing Traffic Speed Deflectometer and Falling Weight Deflectometer Data,” *Transportation Research Record: Journal of the Transportation Research Board (TRB)*.

Submitted (under review)

33. Analytical Solution for a Viscoelastic Plate on a Pasternak Foundation (with L. Khazanovich).
34. Efficient Reevaluation of Surface Displacements in a Layered Elastic Half-space (with S. Andersen and M.B. Andersen).

Refereed publications in conference proceedings

1. *Levenberg, E. and Uzan, J.* (2007), “Uniqueness of the Viscoelastic Time-Function for Asphalt-Aggregate Mixes,” Proceedings of the International Conference on Advanced Characterization of Pavements and Soil Engineering Materials, Vol. 1, Loizos, A. Scarpas, T. and Al-Qadi, I. (eds.), Taylor & Francis Group, London, United Kingdom, pp. 35–48.
2. *Levenberg, E., McDaniel, R.S., and Pellinen, T.K.* (2008), “Backcalculation of Layer Moduli using Time History of Embedded Gauge Readings,” Proceedings of the 3rd International Conference on Accelerated Pavement Testing, Madrid, Spain, October 2008.
3. *Levenberg, E. and Uzan, J.* (2009), “Viscoelastic Response of Asphalt-Aggregate Mixes to Transient Confining Conditions,” Proceedings of the 7th International RILEM Symposium on Advanced Testing and Characterization of Bituminous Materials, Vol. 1, Loizos, A. Partl, M.N. Scarpas, T. and Al-Qadi, I. (eds.), Taylor & Francis, London, UK, pp. 541–550.
4. *Levenberg, E.* (2009), “Validation of NCAT Structural Test Track Experiment using Purdue/INDOT APT Facility,” Proceedings of the 8th International Conference on the Bearing Capacity of Roads, Railways and Airfields, Vol. 2, Tutumluer, E. and Al-Qadi, I. (eds.), Taylor & Francis, London, UK, pp. 1361–1371.
5. *Levenberg, E.* (2009), “Backcalculation of Anisotropic Pavement Properties using Time History of Embedded Gauge Readings,” Selected Papers From the 2009 GeoHunan International Conference: Asphalt Material Characterization, Accelerated Testing, and Highway Management, ASCE Geotechnical Special Publication (GSP) 190, Walubita, L. F., du Plessis, L., Huang, S-C., Simate, G.S., and Liu, Z. (eds.), American Society of Civil Engineers, Reston, Virginia, pp. 79–85.

6. Levenberg, E., *McDaniel, R.S.*, and *Nantung, T.E.* (2012), “How Low is Too Low? Assessing the Risk of Low Air Voids using Accelerated Pavement Testing,” Collection of Papers from the 4th International Conference on Accelerated Pavement Testing: Advances in Pavement Design through Full-scale Accelerated Pavement Testing, Jones, D. (ed.), Harvey, J., Al-Qadi, I., and Mateos, A. (co-eds.), CRC Press, Leiden, The Netherlands, pp. 249–256.
7. Levenberg, E., *Shmuel, I.*, *Orbach, M.*, and *Mizrachi, B.* (2014), “Wireless Pavement Sensors for Wide-Area Instrumentation,” Proceedings of the 3rd International Conference on Transportation Infrastructure (ICTI): Sustainability, Eco-efficiency and Conservation in Transportation Infrastructure Asset Management, Losa, M. and Papagiannakis, T. (eds.), CRC Press, Leiden, The Netherlands, pp. 307–319.
8. Levenberg, E. (2014), “Testing Asphalt Concrete in Diametral Tension-Compression,” Proceedings of the 12th International Conference on Asphalt Pavements (ISAP), Vol. 2, Kim, Y.R. (Ed.), Taylor & Francis, London, UK, pp. 1673–1683.
9. *London, Y.*, *Antman, Y.*, *Silbiger, M.*, *Efraim, L.*, *Froochzad, A.*, *Adler, G.*, Levenberg, E., and *Zadok, A.* (2015), “High-Resolution Brillouin Analysis of Composite Materials Beams,” Proceedings of the 24th International Conference on Optical Fibre Sensors, Vol. 9634(6N), Kalinowski, H.J., Fabris, J.L., and Bock, W.J. (eds.), Society of Photo-Optical Instrumentation Engineers (SPIE), Bellingham, Washington, pp. 1–4.
10. Klar, A., *Uchida, S.*, and Levenberg, E. (2015), “In Situ and Laboratory Mechanical Characterization Using High-Resolution Fiber Optic Distributed Sensing,” Proceedings of the 6th International Symposium on Deformation Characteristics of Geomaterials, Vol. 6, Rinaldi, V.A., Zeballos, M.E. and Clariá, J.J. (eds.), IOS Press Series on Advances in Soil Mechanics and Geotechnical Engineering, Amsterdam, The Netherlands, pp. 382–389.
11. *Drori, O.* and Levenberg, E. (2016), “Characterization of a Traveling Object with an Underground Cluster of Inertial Sensors,” Proceedings of the International Conference on Smart Infrastructure and Construction, Mair, R.J., Soga, K., Jin, Y., Parlikad, A.K. and Schooling, J.M. (eds.), Institution of Civil Engineers (ICE) Publishing, London, United Kingdom, pp. 349–356.
12. Klar, A., Levenberg, E., *Tur, M.*, and *Zadok, A.* (2016), “Sensing for Smart Infrastructure: Prospective Engineering Applications,” Proceedings of the International Conference on Smart Infrastructure and Construction, Mair, R.J., Soga, K., Jin, Y., Parlikad, A.K. and Schooling, J.M. (eds.), Institution of Civil Engineers (ICE) Publishing, London, United Kingdom, pp. 289–295.
13. Levenberg, E. (2016), “Viscoelastic Pavement Modeling with a Spreadsheet,” Proceedings of the 8th International Conference on Maintenance and Rehabilitation of Pavements (Mairepav8), Research Publishing, Singapore, pp. 746–755.
14. *Andersen, S.*, Levenberg, E., and *Andersen, M.B.* (2017), “Inferring Pavement Layer Properties from a Moving Measurement Platform,” Proceedings of the 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields, Loizos A., Al-Qadi, I.L., and Scarpas, T. (Eds), CRC Press/Taylor & Francis Group, pp. 675–682.

15. *Bose, T., Levenberg, E., and Zania, V. (2018), "Analysis of Track Responses to Train Braking (extended abstract)," Proceedings of the 97th Annual Meeting of the Transportation Research Board.*

Submitted (under review)

16. *Bose, T., Zania, V., and Levenberg, E. (2018), "Numerical Modelling of an Experimental Setup Simulating Asphalt Overlayment Tracks (extended abstract)," Fourth International Conference on Railway Technology: Research, Development and Maintenance (Railways 2018).*

Research reports and case reports

1. *Levenberg, E., McDaniel, R.S., and Olek, J. (2009), "Validation of NCAT Structural Test Track Experiment using INDOT APT Facility: Final Report," Joint Transportation Research Program (JTRP), Report FHWA/IN/JTRP-2008/26, Indiana Department of Transportation and Purdue University.*
2. *Levenberg, E. (2012), "Advanced Mechanical Characterization of Unbound Granular Pavement Materials," German-Israeli Foundation for Scientific Research and Development (GIF), Final Report for Grant No. I-2235-2078.10/2009, Technion-IIT.*
3. *McDaniel, R.S. and Levenberg, E. (2013), "Risk Management of Low Air Void Asphalt Concrete Mixtures," Joint Transportation Research Program (JTRP), Report FHWA/IN/JTRP-2013/15, Indiana Department of Transportation and Purdue University.*
4. *Levenberg, E., Orozova-Bekkevold, I., and Nielsen, K. (2017), "An Offshore Reservoir Monitoring System Based on Fiber Optic Sensing of Seabed Strains," Radical Innovation Sprint (RIS) Project Report No. 31, The Danish Hydrocarbon Research and Technology Centre (DHRTC), Technical University of Denmark (DTU).*

Other publications

1. *Feferbaum, S. and Levenberg, E. (2000), "Pavement Design on Subgrades having a Non-uniform Strength Profile," Traffic and Transportation 62 (in Hebrew).*
2. *Levenberg, E. (2003), "A New Approach for Controlling Compaction Quality in Pavement Construction Projects," Traffic and Transportation 71 (in Hebrew).*
3. *Levenberg, E. (2006), "Real-Time Control of HMA Mat Density using the PQI - An Initial Study for Possible Implementation," Prepared for the Israeli National Roads Company (in Hebrew).*
4. *Levenberg, E. (2007), "Cost-Effectiveness of Designing Asphalt Pavements using the Israeli PWD Guidelines With and Without an Aggregate Base Course," Prepared for the Israeli National Roads Company (in Hebrew).*
5. *Levenberg, E. (2011), "The Vacuum Sealing Method for Determination of Bulk Density of Compacted Asphalt Mixtures," Prepared for the Israeli National Roads Company (in Hebrew).*
6. *Levenberg, E. (2012), "Prototype Development of Smart Pavement Sensors," Prepared for the Israeli National Roads Company (in Hebrew).*

7. Levenberg, E. (2013), “Changeover from Marshall to Gyrotory Compaction – Phase I,” prepared for the Israeli National Roads Company (in Hebrew).

CONFERENCES AND PRESENTATIONS

Participation in organizing conferences

1. 8th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2009), Champaign, Illinois, June 29–July 2, 2009. *Chair of session* on “Performance Evaluations of Asphalt Mixtures.”
2. 1st Binational Student Workshop on Transportation, Haifa, Israel, March 19–21, 2013 (funded by the U.S. National Science Foundation). *Organizer and chair*.
3. International Society for Maintenance and Rehabilitation of Transportation Infrastructures (iSMARTi), 3rd International Conference on Transportation Infrastructure (ICTI), Pisa, Italy, April 22–25, 2014. *Scientific committee member and chair of session* on “Asphalt Pavement Performance and Design.”
4. International Society for Asphalt Pavements (ISAP), 12th Conference on Asphalt Pavements, Raleigh, North Carolina, June 1–5, 2014. *Scientific committee member, co-organizer* of (and participant in) a symposium on “Building the Road Connecting Models to Practices – Challenges and Opportunities,” and *moderator of session* on “Long-term Pavement Performance Prediction.”
5. 3rd International Conference on Perpetual Pavements (ICPP), Columbus, Ohio, October 30–31, 2014. *Scientific committee member*.
6. International Airfield & Highway Pavements Specialty Conference, Miami, Florida, June 7–10, 2015. *Scientific committee member*.
7. 6th Conference of the European Asphalt Technology Association (EATA), Stockholm, Sweden, June 15–17, 2015. *Scientific committee member*.
8. 94th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 11–15, 2015. *Organizer and chair of lectern session* on “Multiaxial Characterization of Asphalt Concrete Mixtures.”
9. 8th International RILEM Symposium on Testing and Characterization of Sustainable and Innovative Bituminous Materials, Ancona, Italy, October 7–9, 2015. *Scientific committee member*.
10. 7th Conference of the European Asphalt Technology Association (EATA), Zürich, Switzerland, June 12–14, 2017. *Scientific committee member*.
11. 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA 2017), Athens, Greece, June 28–30, 2017. *Scientific committee member*.
12. Conference on Advances in Materials and Pavement Performance Prediction (AM3P), Doha, Qatar, April 16–18, 2018. *Scientific committee member*.

Presentations in international conferences

1. Levenberg, E. and Uzan, J. "Uniqueness of the Viscoelastic Time-Function for Asphalt-Aggregate Mixes," International Conference on Advanced Characterization of Pavements and Soil Engineering Materials, Athens, Greece, June 22, 2007.
2. Levenberg, E., McDaniel, R.S., and Pellinen, T. K. "Backcalculation of Layer Moduli using Time History of Embedded Gauge Readings," 3rd International Conference on Accelerated Pavement Testing, Madrid, Spain, October 2, 2008.
3. Levenberg, E. and Uzan, J. "Viscoelastic Response of Asphalt-Aggregate Mixes to Transient Confining Conditions," 7th International RILEM Symposium on Advanced Testing and Characterization of Bituminous Materials, Rhodes, Greece, May 2009.
4. Levenberg, E. "Validation of NCAT Structural Test Track Experiment using Purdue/INDOT APT Facility," 8th International Conference on the Bearing Capacity of Roads, Railways and Airfields, Champaign, Illinois, July 2, 2009.
5. Levenberg, E. "A Novel Computational Scheme for Exposing the Nonlinear Viscoelastic Behavior of Time-Dependent Materials with Application to Asphalt-Aggregate Mixes," 11th US National Congress on Computational Mechanics, Minneapolis, Minnesota, July 26, 2011.
6. Levenberg, E., McDaniel, R.S., and Nantung, T.E. "How Low is Too Low? An Assessment of the Risk of Low Air Voids in Asphalt," 4th International Conference on Accelerated Pavement Testing, University of California – Davis, California, September 20, 2012.
7. Faturechi, R., Levenberg, E., Miller-Hooks, E., and Zhang, X. "Maximizing Resilience of Airport Runway and Taxiway Pavement Networks through Stochastic Programming," Annual Meeting of the Institute for Operations Research and the Management Sciences (INFORMS), Phoenix, Arizona, October 14, 2012.
8. Varma, S., Kutay, E., and Levenberg, E. "Viscoelastic Genetic Algorithm for Inverse Analysis of Asphalt Layer Properties from Falling Weight Deflections," 92nd Transportation Research Board (TRB) Annual Meeting, Washington DC, January 15, 2013.
9. Levenberg, E. and Manevich, A. "Determination of Bulk Volume of Asphalt Specimens with Image-based Modeling," 92nd Transportation Research Board (TRB) Annual Meeting, Washington DC, January 17, 2013.
10. Levenberg, E. and Michaeli, N. "Viscoelastic Characterization of Asphalt-Aggregate Mixes in Diametral Compression," 5th European Asphalt Technology Association (EATA) Conference, Braunschweig, Germany, June 4, 2013.
11. Levenberg, E., Shmuel, I., Orbach, M., and Mizrachi, B. "Wireless Pavement Sensors for Wide-Area Instrumentation," 3rd International Conference on Transportation Infrastructure, Pisa, Italy, April 23, 2014.
12. Levenberg, E. "Testing Asphalt Concrete in Diametral Tension-Compression," 12th International Society for Asphalt Pavements (ISAP) Conference on Asphalt Pavements, Raleigh, North Carolina, June 4, 2014.

13. Miller-Hooks, E., Levenberg, E., Asadabadi, A., Faturechi, R. "Resilience of Networked Infrastructure with Evolving Component Conditions," Annual Meeting of the Institute for Operations Research and the Management Sciences (INFORMS), San Francisco, California, November 9, 2014.
14. Levenberg, E. "Backcalculation with an Implanted Inertial Sensor," 94th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 12, 2015.
15. Levenberg, E. "Intrinsic Roughness Mitigation of Pavements on Expansive Soils," 94th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 12, 2015.
16. Levenberg, E. and Drori, O. "Characterization of Moving Surface Loads with Buried Accelerometers," 42nd Annual Conference on Review of Progress in Quantitative Nondestructive Evaluation (QNDE), Minneapolis, Minnesota, July 29, 2015.
17. Klar, A., Uchida, S., and Levenberg, E. "In Situ and Laboratory Mechanical Characterization Using High-Resolution Fiber Optic Distributed Sensing," 15th Panamerican Conference on Soil Mechanics and Geotechnical Engineering, Buenos Aires, Argentina, November 15, 2015.
18. Klar, A., Levenberg, E. Tur, M., and Zadok, A. "Sensing for Smart Infrastructure: Prospective Engineering Applications," International Conference on Smart Infrastructure and Construction (ICSIC), Cambridge, UK, June 29, 2016.
19. Levenberg, E. "Viscoelastic Pavement Modeling with a Spreadsheet," 8th International Conference on Maintenance and Rehabilitation of Pavements (Mairepav8), Singapore, July 28, 2016.
20. Andersen, S., Levenberg, E., and Andersen, M.B. "Inferring Pavement Layer Properties from a Moving Measurement Platform," The 10th International Conference on the Bearing Capacity of Roads, Railways and Airfields (BCRRA), Athens, Greece, June 28, 2017.
21. Christensen, B.M.L., Pettinari, M., Baltzer, S., and Levenberg, E. "A Comparison of Traffic Speed Deflectometer and Falling Weight Deflectometer Data," International Conference on Highway Pavements and Airfield Technology, Philadelphia, Pennsylvania, August 29, 2017.
22. Levenberg, E. "Remote Sensing for Pavement Evaluation and Traffic Characterization," International Conference on Highway Pavements and Airfield Technology, Philadelphia, Pennsylvania, August 30, 2017.
23. Levenberg, E., Pettinari, M., Baltzer, S., and Christensen, B. "Comparing Traffic Speed Deflectometer and Falling Weight Deflectometer Data," 97th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 10, 2018.

Posters in international conferences

1. Levenberg, E. and Shah, A. "Interpretation of Complex Modulus Test Results for Asphalt-Aggregate Mixes," Transportation Research Board (TRB) 87th Annual Meeting, Washington DC, USA, January 15, 2008.

2. Levenberg, E. "Smoothing Asphalt Concrete Complex Modulus Test Data," Transportation Research Board (TRB) 89th TRB Annual Meeting, Washington DC, USA, January 12, 2010.
3. Levenberg, E. "Viscoelastic-Viscoplastic Characterization of Unbound Granular Materials," Transportation Research Board (TRB) 92nd TRB Annual Meeting, Washington DC, USA, January 14, 2013.
4. Levenberg, E. "Estimating Vehicle Speed with Embedded Inertial Sensors," Transportation Research Board (TRB) 93rd TRB Annual Meeting, Washington DC, USA, January 13, 2014.
5. London, Y., Antman, Y., Silbiger, M., Efraim, L., Froochzad, A., Adler, G., Levenberg, E., and Zadok, A. (2015), "High-Resolution Brillouin Analysis of Composite Materials Beams," 24th International Conference on Optical Fibre Sensors (OFS-24), Curitiba, Brazil, October 1, 2015.
6. Levenberg, E., Miller-Hooks, E., Asadabadi, A., and Faturechi, R. "Resilience of Networked Infrastructure with Evolving Component Conditions," 95th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 12, 2016.
7. Drori, O. and Levenberg, E. "Characterization of a Traveling Object with an Underground Cluster of Accelerometers," International Conference on Smart Infrastructure and Construction (ICSIC), Cambridge, UK, June 27, 2016.
8. Nezlobin, D., Pariente, S., Lavee, H., Sachs, E., and Levenberg, E. "Runoff Initiation from Falling Raindrops – Comparison of Smooth Impervious Surface and Asphalt Pavements. Effects of Surface Inclination and Texture," European Geosciences Union General Assembly, Vienna, Austria, April 27, 2017.
9. Bose, T., Levenberg, E., and Zania, V. "Analysis of Track Responses to Train Braking," 97th Transportation Research Board (TRB) Annual Meeting, Washington DC, January 9, 2018.

Seminars at universities

1. One-dimensional Viscoelastic-Viscoplastic Modeling of Asphalt Concrete with Damage and Healing. School of Civil Engineering, Purdue University, West Lafayette, Indiana, September 13, 2007.
2. Validation of NCAT Structural Test Track Experiment using INDOT APT Facility. School of Civil Engineering, Purdue University, West Lafayette, Indiana, April 17, 2008.
3. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. Department of Civil and Environmental Engineering, University of Illinois, Urbana-Champaign, Champaign, Illinois, April 24, 2008.
4. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. Department of Civil, Construction and Environmental Engineering, North Carolina State University, Raleigh, North Carolina, November 12, 2008.

5. Validation of NCAT Structural Test Track Experiment using INDOT APT Facility. Department of Civil Engineering, University of Pisa, Italy, February 25, 2009.
6. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. Transportation College, Southeast University, Nanjing, China, November 08, 2010.
7. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. University of Nottingham, Faculty of Civil Engineering, Nottingham Transportation Engineering Center, Nottingham, UK, May 26, 2011.
8. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. Dresden University of Technology, Dresden, Germany, July 12, 2011.
9. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. University of Minnesota, Minneapolis, Minnesota, July 25, 2011.
10. Overview of Pavement Research at the Technion. Tongji University, Shanghai, China, September 18, 2012.
11. Linking Accelerated Pavement Testing Results to Field Behavior. Tongji University, Shanghai, China, September 26, 2012.
12. Pavement Research at the Technion. Catholic university of America, Washington, DC, October 28, 2014.
13. Pavement Research at the Technion. University of Maryland, College Park, Maryland, October 30, 2014.

Presentations in international workshops/professional meetings

1. 1-D VE-VP Modeling of AC with Damage and Healing. Transportation Research Board Annual Meeting of Subcommittee AFK50(1), Washington DC, January 2005.
2. Validation of NCAT Structural Test Track Experiment using INDOT/Purdue APT Facility. APAT-FHWA-INDOT HMA Conference, Indianapolis, Indiana, December 4, 2007.
3. Incorporation of HMA Dynamic Modulus in the M-E PDG. North-Central M-E PDG User Group, Ames, Iowa, February 19, 2008.
4. Nonlinear Viscoelastic Behavior of Asphalt-Aggregate Mixes. Transportation Research Board Annual Meeting of Subcommittee AFK50(1), Washington DC, January 14, 2013.
5. A Short Exposition of Research Activities at the Technion Transportation Infrastructure Laboratory. National Airport Pavement Test Facility (NAPTF), William J. Hughes Technical Center, Atlantic City, NJ, February 27, 2013.
6. Backcalculation with Implanted Inertial Sensors. Transportation Research Board Annual Meeting of Subcommittee AFD80(1), Washington DC, January 14, 2014.
7. The Continuous Inference of In Situ Layer Properties as Key for Improving Material Selection, Construction Practices, and Pavement Models. Symposium on Building the Road

Connecting Models to Practices—Challenges and Opportunities, ISAP 12th Meeting, Raleigh, North Carolina, June 2, 2014.

8. Interpretation of In-pavement Acceleration Traces. Turner-Fairbank Highway Research Center (TFHRC), McLean, Virginia, October 28, 2014.
9. Pavement Research at the Technion. Technology Transfer Seminar, Minnesota Department of Transportation (MnDOT), Saint Paul, MN, September 2, 2015.
10. Modeling Viscoelastic Tension-Compression Nonlinearity in Asphalt Concrete. Transportation Research Board Annual Meeting of Subcommittee AFK50(1), Washington DC, January 11, 2016.
11. Accessing Pavement Layer Properties from a Moving Measurement Platform. Transportation Research Board Annual Meeting of Committee AFD80, Washington DC, January 9, 2017.
12. The Danish Roads2Rails Project: Investigating a Ballastless Track Construction based on Asphalt Concrete, Transportation Research Board Annual Meeting of Committee AR050, Washington DC, January 9, 2018.
13. Inverse Analysis of Pavement Layer Properties from a Moving Measurement Platform, Transportation Research Board Annual Meeting of Subcommittee AFD80(1), Washington DC, January 10, 2018.

Presentations in national workshops/professional meetings

a. Denmark

1. Advanced and Widely Available Pavement Assessment Tools for Infrastructure Evaluation. DTU Transport Summit, Kongens Lyngby, May 31, 2017.
2. Monitoring Seabed Deformation with Fiber Optic Sensing – A Feasibility Study. Technology Conference of the Danish Hydrocarbon Research and Technology Centre (DHRTC), Kolding, November 14, 2017.

b. Israel

3. Constitutive Modeling of Asphalt-Aggregate Mixes with Damage and Healing. Annual Symposium of the Israel Society for Theoretical and Applied Mechanics (ISTAM), Tel Aviv, December 16, 2001.
4. Real-time Measurement of Asphalt Mat Density. 2nd Military International Conference on Pavement Maintenance, Tel-Nof Air Force Base, May 24, 2005.
5. Development of Marshall Procedures for HMA Mixture Design. 4th Israeli Conference for Construction and Infrastructure, Tel Aviv, November 28, 2005.
6. Simultaneous Application of Creep and Relaxation Formulations to Study Nonlinear Behavior of Particle-reinforced Viscoelastic Composites. Annual Symposium of the Israel Society for Theoretical and Applied Mechanics (ISTAM), Tel Aviv, December 28, 2008.
7. Accelerated Pavement Testing under Laboratory and Field Conditions. 2nd Israeli Conference for Transportation and Infrastructure, Nazareth, March 18, 2010.

8. Viscoelastic Formulation with Different Tensile and Compressive Properties. 37th Israel Symposium on Computational Mechanics (ISCM-37), Tel Aviv, October 23, 2014.
9. Paths for Unlocking the Potential of Pavements to Accommodate Recycled Materials. Binational Israel-Singapore Seminar on Recycling of Materials, Haifa, November 11, 2014.

SPECIAL PROFESSIONAL ACTIVITIES

a. Technion-IIT

Establishment of the new Transportation Infrastructure Laboratory (til.net.technion.ac.il/), a novel research and teaching facility designed and built to support the Technion's activities in the field of pavements. The Laboratory complex, located on three separate levels within the Mauerberger Soil Engineering Building, comprises the Road Materials Teaching Laboratory, the Pavement Research and Graduate Student Laboratory, and the Advanced Mechanical Testing Laboratory (total area of 800 m²). Work included massive physical restoration of the structure, purchasing and operating new testing gear, upgrading existing equipment, fabrication of non-standard machine parts, and hires of new staff. Two engineering technicians permanently work in this laboratory, alongside one or two students or engineers hired on a project basis. While major design and construction efforts took place between 2009 and 2012, the work is still ongoing. Current focus is on renewal and modernization of outdated teaching-related tools, as well as on advancement of overall scientific capabilities.