

TEDDY LAZEBNIK - 9.8.2022

PERSONAL INFORMATION

Electronic Address: t.lazebnik@ucl.ac.uk

Mobile: +972-54-5524589

Marital Status: Common-law married

Citizenship: Israeli

PROFESSIONAL SUMMARY

Mathematical models and algorithms researcher (and developer) in the fields of epidemiology, medicine, economics, and information systems. Ten years of experience in software development in the industry, including six years of experience as an algorithm developer with a focus on data-driven algorithms for bio-medical tasks.

ACADEMIC EDUCATION

Bar-Ilan University 2013 - 2016

B.Sc. in Applied Mathematics

- Final project about "Observable of Discrete-continuous Linear Time Interval Systems with Continuous Time Measurement".

Bar-Ilan University 2017 - 2018

M.Sc. in Applied Mathematics

- Thesis about "Highly Stable Numerical Algorithm for Matrix Exponent" (Hebrew) - supervised by Dr. Shlomo Yanetz 18, 17.

Ariel University 2020 - 2021

Ph.D. in Biomathematics

- Thesis about "Modeling and Numerical Calculation of Pandemic Spread and Optimal Oncology Treatment Protocols" - supervised by Dr. Svetlana Bunimovich-Mendrazitsky 16, 15, 14, 13, 12.

ACADEMIC EMPLOYMENT

Holon Institute of Technology, Department of Mathematics Oct 2019 - Feb 2020

Teaching Assistant

- Teaching Numerical Analysis (Bachelor's degree).

Holon Institute of Technology, Department of Mathematics Feb 2020 - July 2020

Lecturer

- Teaching Deep Learning for Computer Vision (Bachelor's degree).

Bar-Ilan University, Department of Mathematics Oct 2018 - July 2020

Research And Teaching Assistant

- Teaching the following courses: Partial differential equations (PDE), Introduction to linear mathematical optimization, Numerical Analysis 1, and Tools for Numerical Programming for Engineering - all Bachelor's degree.
- Academic research guidance and code review for Bachelor and Master computer science students' final project.

- Teaching the following courses: Advanced Programming 1 and Advanced Programming 2 - all Bachelor's degree.
- Academic research guidance for Master computer science students' final project.
- Developed a Mathematical model simulation of nanoparticles-based targeted drug delivery.
- Developed a novel academic search engine from scratch to tackle local concept drift in academic search.

- Developed a novel artificial genomics generator using machine learning and bio-genomic models.
- Leading 3 research teams in the development of personalized medicine through data-driven algorithms.

ACADEMIC HONORS AND AWARDS

Bar-Ilan University

2017

M.Sc student

- A prize for excellence in studies and research at the master's degree in the name of David Barkovski.

Ariel University

2022

Ph.D. student

- A prize for academic excellence with multiple high-quality publications.

STUDENTS SUPERVISION

Undergraduate students

- Bar Ilan University, Pedro Nissan, 2017 (Under the supervision of Prof' Gal A. Kaminka).
- Bar Ilan University, Shira Min Hahar, 2018.
- Bar Ilan University, Tamar Feuchtwanger, 2018.
- Bar Ilan University, Tamar Feuchtwanger, 2018.
- Bar Ilan University, Chen Tal-Schachar, 2019 (Under the supervision of Prof' Gal A. Kaminka).

M.Sc. students

- Bar Ilan University, Ariel Alexi, 2022 (Co-advised with Dr. Ariel Rosenfeld).
- Tel Aviv University, Liron Simon, 2022 (Co-advised with Prof' Alexander Liberzon).

Ph.D. students

LIST OF PUBLICATIONS

Articles in Refereed Journals

1. L. Shami, **T. Lazebnik**, Financing and Managing Epidemiological-Economic Crisis: The Reserve Model. IMF Economic Review. 2022. (Accepted)
2. **T. Lazebnik**, U. Itai, Bounding Pandemic Spread By Heat Spread. Open Access Library Journal. 2022. (Accepted)
3. **T. Lazebnik**, Cell-level Spatio-Temporal Model for Bacillus Calmette-Guerin Based Immunotherapy Treatment Protocol of Superficial Bladder Cancer. Cells. 2022.
4. T. Gargantini, M. Daly, J. Sherlock, **T. Lazebnik**. Providing Safe Space for Honest Mistakes in the Public Sector Is The Most Important Predictor For Work Engagement After Strategic Clarity. Sustainability. 2022.

5. **T. Lazebnik**, Z. Bahouth, S. Bunimovich-Mendrazitsky, S. Halachmi, Predicting Acute Kidney Injury Following Open Partial Nephrectomy Treatment Using SAT-Pruned Explainable Machine Learning Model. BMC Medical Informatics and Decision Making. 2022.
6. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, Generic Approach For Mathematical Model of Multi-Strain Pandemics. Plus One. 2022.
7. S. Natan, **T. Lazebnik**, E. Lerner, A distinction of three online learning pedagogic paradigms. SN Social Science. 2022.
8. Z. Zemah-Shamir, S. Zemah-Shamir, A. Scheinin, D. Tchernov, **T. Lazebnik**, G. Gal, A review of the behavioural changes and physiological adjustments of elasmobranchs and teleost's to ocean acidification with a focus on sharks. Fishes. 2022.
9. **T. Lazebnik**, G. Blumrosen, Advanced Muti-Mutation with Intervention Policies Pandemic Model. IEEE Access. 2022.
10. E. Savchenko, **T. Lazebnik**, Computer Aided Functional Style Identification and Correction In Modern Russian Texts. Journal of Data, Information and Management. 2022.
11. **T. Lazebnik**, A. Alexi, Comparison of Pandemic Intervention Policies in Several Building Types Using Heterogeneous Population Model. Communications in Nonlinear Science and Numerical Simulation. 2022.
12. **T. Lazebnik**, L. Shami, S. Bunimovich-Mendrazitsky, Pandemic Management by a Spatio-temporal Mathematical Model. International Journal of Nonlinear Sciences and Numerical Simulation. 2021.
13. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, L. Shaikhet, Novel Method to Analytically Obtain the Asymptotic Stable Equilibria States of Extended SIR-type Epidemiological Models. Symmetry. 2021.
14. **T. Lazebnik**, L. Shami, S. Bunimovich-Mendrazitsky, Spatio-Temporal Influence of Non-Pharmaceutical Interventions Policies on Pandemic Dynamics and the Economy: The Case of COVID-19. Economic Research-Ekonomiska Istraživanja. 2021.
15. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, The signature features of COVID-19 pandemic in a hybrid mathematical model - implications for optimal work-school lockdown policy. Advanced Theory and Simulations. 2021.
16. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, N. Aaroni, PDE based geometry model for BCG immunotherapy of bladder cancer. Biosystems. 2020.
17. **T. Lazebnik**, S. Yantez, S. Bunimovich-Mendrazitsky, N. Aaroni, Treatment of Bladder Cancer Using BCG Immunotherapy: PDE Modeling. Functional Differential Equations. 2019.
18. **T. Lazebnik**, S. Yantez, A Stable Algorithm for Numerical Matrix Exponent. Functional Differential Equations. 2017.

Articles in Refereed Conferences

1. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, Improved Geometric Configuration for the Bladder Cancer BCG-based Immunotherapy Treatment Model. ISMCO. 2021.
2. **T. Lazebnik**, A. Somech, Demonstrating SubStrat: A Subset-Based Strategy for Faster AutoML on Large Datasets. CIKM. 2022. (Accapted)

Manuscripts Submitted / Under Review

1. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, A. Rosenfeld, An Algorithm to Optimize Explainability using Feature Ensembles.
2. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, Decision Tree Post-Pruning Without Loss Of Accuracy using the SAT-PP algorithm with an Empirical Evaluation on Clinical Data.

3. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, More Numerically Accurate Algorithm For Matrix Exponential.
4. **T. Lazebnik**, H. Weitman, Y. Goldberg, G. A. Kaminka, Rivendell: Project-Based Academic Search Engine.
5. **T. Lazebnik**, L. Shami, S. Bunimovich-Mendrazitsky, Optimal Border Closure Policy and Tourism Flows During Epidemiological-Economic Crises: An Artificial Intelligence Approach.
6. **T. Lazebnik**, L. Shami, S. Bunimovich-Mendrazitsky, Intervention Policy Influence on the Effect of Epidemiological Crisis on Industry-Level Production Through Input-Output Networks.
7. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, A. Kiselyov, Mathematical Model for BCG-based Treatment Of Type 1 Diabetes.
8. A. Alexi, **T. Lazebnik**, L. Shami, Micro-Founded Tax Revenue Forecast Model In a Supply-Demand Based Economy with Heterogeneous Population.
9. **T. Lazebnik**, A. Rosenfeld, A New Definition For Feature Selection Stability Analysis.
10. **T. Lazebnik**, A. Somech, A. Itzhak-Weinberg, SubStrat: Faster AutoML with Measure-Preserving Data Subsets.
11. **T. Lazebnik**, A. Rosenfeld, Optimal Filter And Embedding Feature Selection Ensemble For Explainable Machine Learning Models.
12. L. Shami, **T. Lazebnik**, A Better Estimation and Prediction of the Non-Observed Economy in Israel.
13. **T. Lazebnik**, A. Alexi, High Resolution Mathematical Model for Airborne Pandemic Spread Indoors.
14. N. Cohen, **T. Lazebnik**, Agent-Based Simulation of Street-Level Bureaucrats' Prosocial Tendencies in the Traditional, NPM, and Post-NPM Approaches to Public Administration.
15. L. Shami, **T. Lazebnik**, O. Akirev, Analysis of the Optimal Number of Ministers: The Case of Israel.
16. **T. Lazebnik**, Computational Applications of Extended SIR Models: A Review Focused on Airborne Pandemics.
17. L. Shami, **T. Lazebnik**, Economic Aspects of the Detection of New Strains in a Multi-Strain Epidemiological Mathematical Model.
18. N. Cohen, **T. Lazebnik**, Trust and Street-Level Bureaucrats' Willingness to Risk Their Lives for Others: The Case of Brazilian Law Enforcement.
19. D. Krongauz, **T. Lazebnik**, Collective Evolution Learning Model for Vision-Based Collective Motion with Collision Avoidance.
20. **T. Lazebnik**, S. Bunimovich-Mendrazitsky, S. Ashkenazi, A. Benis, Early Detection And Control of the Next Epidemic Wave using Health Communication as Implemented with COVID-19.
21. Y. A. Veturi, W. Woof, **T. Lazebnik**, I. Moghul, P. Woodward-Court, S. K. Wagner, T. A. C. de Guimarães, M. D. Varela, B. Liefers, S. Beck, A. R. Webster, O. Mahroo, P. A. Keane, M. Michaelides, K. Balaskas, N. Pontikos, SynthEye: Investigating the impact of synthetic data on AI-assisted gene diagnosis of Inherited Retinal Disease.
22. A. Alexi, A. Rosenfeld, **T. Lazebnik**, A Security Games Inspired Approach for Distributed Controlling Of Pandemic Spread.
23. **T. Lazebnik**, S. Beck, L. Shami, Academic Collaboration is a Risky Game.

24. **T. Lazebnik**, H. Weitman, G. A. Kaminka, Graph-Based Pharmacokinetics-Pharmacodynamics Modeling for Large Scale Systems: Nanoparticles Case.
25. **T. Lazebnik**, H. Weitman, G. A. Kaminka, Generic Purpose Pharmacokinetics-Pharmacodynamics Mathematical Model For Nanomedicine Targeted Drug Delivery: Mouse Model.

Editorial work

1. **Journal:** Cells. **Position:** Guest editor of a special issue entitled "Cell-Cell Interaction Modelling of Cancer Immunotherapy Treatments", 1-11.2022.

Conference Talks

1. **Subject:** Lazebnik, T. and Bunimovich-Mendrazitsky, S., Mathematical Model for the BCG-based Treatment of Type 1 Diabetes.
Conference: Dynamical Systems Applied To Biology And Natural Science, 02.2022.
2. **Subject:** Shami, L. and Lazebnik, T., Financing and Managing Epidemiological-Economic Crisis: The Reserve Model.
Conference: ICEA, Public Policy Lessons conference, 11.2021.
3. **Subject:** Lazebnik, T., Shami, L., and Bunimovich-Mendrazitsky, S., Epidemiological-Economical Pandemic Management By A Spatio-Temporal Mathematical Model.
Conference: Dynamical Systems Applied To Biology And Natural Science, 02.2021.

Invited Talks (Chosen)

1. **Subject:** Simulating Complex Socioeconomic Dynamics Using the Agent-based Approach.
Location: Reichman University, Environmental Science Institute's Faculty Seminar, 1.2022.
2. **Subject:** Optimizing Explainability Using Feature Selection With Iterative Ensembles Intersections.
Location: Holon Institute of Technology, Computer Science Faculty Seminar, 11.2021.
3. **Subject:** Pandemic Management with Economic Outcomes.
Location: Tel Aviv University, Mathematics Faculty Seminar, 10.2021.
4. **Subject:** Influence of Non-Pharmaceutical Interventions Policies on Pandemic Dynamics from Economic Prospective.
Location: Western Galilee College, Economics Faculty Seminar, 6.2021.

LANGUAGES

- **Hebrew:** Native.
- **Russian:** Native.
- **English:** Full professional proficiency.