



6 documents have cited:

Time-Series Forecasting of COVID-19 Cases Using Stacked Long Short-Term Memory Networks

Maaliw R.R., Mabunga Z.P., Villa F.T.

(2021) 2021 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, 3ICT 2021, , pp. 435-441.

Search within results...

Analyze search results

Show all abstracts Sort on: Date (newest)

Refine results

 Limit to Exclude

Open Access

 All Open Access

(1) >

 Gold

(1) >

Learn more

Year

 2023

(2) >

 2022

(2) >

 2021

(2) >

Author name

 Maaliw, R.R.

(3) >

 Mabunga, Z.P.

(2) >

 Abante, M.V.

(1) >

 Aguinaldo, B.E.

(1) >

 Alon, A.S.

(1) >

View more

Subject area

 Computer Science

(5) >

 Decision Sciences

(2) >

 Engineering

(2) >

 Physics and Astronomy

(2) >

 Medicine

(1) >

Document type

Publication stage

Source title

Keyword

Affiliation

Funding sponsor

Country/territory

Source type

Language

 Limit to Exclude

Export refine

	Document title	Authors	Year	Source	Cited by
<input type="checkbox"/>	1 Flood risk assessment in Cagayan Valley: A development of ODESSEE for pre-emptive evacuation amidst Covid-19 pandemic	Aguinaldo, B.E., Natividad, M.C.B., Górospe, R.A.B., Solis, J.S.B.	2023	AIP Conference Proceedings 2602, 030018	0
	View abstract View at Publisher Related documents				
<input type="checkbox"/>	2 A pattern mixture model with long short-term memory network for acute kidney injury prediction <i>Open Access</i>	Fathima Begum, M., Narayan, S.	2023	Journal of King Saud University - Computer and Information Sciences 35(4), pp. 172-182	0
	View abstract View at Publisher Related documents				
<input type="checkbox"/>	3 Cataract Detection and Grading Using Ensemble Neural Networks and Transfer Learning	Maaliw, R.R., Alon, A.S., Lagman, A.C., (...), Tan, J.B., Maano, R.A.	2022	2022 IEEE 13th Annual Information Technology, Electronics and Mobile Communication Conference, IEMCON 2022 pp. 74-81	8
	View abstract View at Publisher Related documents				
<input type="checkbox"/>	4 An Optimized Soil Moisture Prediction Model for Smart Agriculture Using Gaussian Process Regression	Mabunga, Z.P., Dela Cruz, J.C.	2022	2022 IEEE 18th International Colloquium on Signal Processing and Applications, CSPA 2022 - Proceeding pp. 243-247	1
	View abstract View at Publisher Related documents				
<input type="checkbox"/>	5 An Ensemble Machine Learning Approach for Time Series Forecasting of COVID-19 Cases	Maaliw, R.R., Ballera, M.A., Mabunga, Z.P., (...), Dejelo, D.A., Seno, M.P.	2021	2021 IEEE 12th Annual Information Technology, Electronics and Mobile Communication Conference, IEMCON 2021 pp. 633-640	13
	View abstract View at Publisher Related documents				
<input type="checkbox"/>	6 A Circuit Design of a Sensor Amplifier for Improving Blood Pressure Measurement in Telehealth System	Panergo, M.C., Cruz, F.R.G., Maaliw, R.R.	2021	2021 IEEE 12th Annual Information Technology, Electronics and Mobile Communication Conference, IEMCON 2021 pp. 783-788	1
	View abstract View at Publisher Related documents				

Display: results per page

Top of page



< Back to results | < Previous 2 of 6 Next >

 [Download](#) [Print](#) [Save to PDF](#) [Add to List](#) [Create bibliography](#)

[Journal of King Saud University - Computer and Information Sciences](#) • Open Access • Volume 35, Issue 4, Pages 172 - 182 • April 2023

A pattern mixture model with long short-term memory network for acute kidney injury prediction

Fathima Begum M. ; Narayan, Subhashini

^a School of Information Technology and Engineering, Vellore Institute of Technology, Vellore, India

View PDF Full text options Export

Document type

Article • Gold Open Access

Source type

Journal

ISSN

13191578

DOI

10.1016/j.jksuci.2023.03.007

[View more](#)

Cited by 0 documents

Inform me when this document is cited in Scopus:

[Set citation alert](#)

Related documents

[A Machine Learning Model for Acute Kidney Injury Prediction with Novel Kidney Biomarkers](#)

Fathima Begum, M. , Narayan, S. (2022) *Proceedings - 2nd International Conference on Next Generation Intelligent Systems, ICNGIS 2022*

[Artificial intelligence in acute kidney injury risk prediction](#)

Gameiro, J. , Branco, T. , Lopes, J.A. (2020) *Journal of Clinical Medicine*

[Machine learning method for the management of acute kidney injury: More than just treating biomarkers individually](#)

Zhang, Z. (2019) *Biomarkers in Medicine*

[View all related documents based on references](#)

Find more related documents in Scopus based on:

[Authors](#) [Keywords](#)

Abstract

Author keywords

Sustainable Development Goals 2023

SciVal Topics

Metrics

Acute kidney disease is a serious complication characterized by poor short- and long-term outcomes in the intensive care unit. Impairment in renal function of the kidney significantly increases the mortality rate. Early detection of acute kidney disease could lead to preventive interventions, therefore deep learning systems can detect it before its symptoms and consequences appear. We developed a novel deep learning architecture like Stacked long short-term memory network with pattern mixture approach for kidney injury prediction. A total of 33,754 patients encountered were retrospectively analyzed from the MIMIC-III database. A selection and pattern mixture model was used for preprocessing the time-series data. We compared the proposed result with conventional algorithms like gradient boosted trees and long short-term memory model. Our model was trained on patient time-series data for different time windows and obtained the highest accuracy of 92.4% for 12 h and 92.6% for 24 h. A novel stacked long short-term memory model outperforms the machine learning model, revealing superior performance in predicting kidney injury 24 h before onset. © 2023 The Authors

Author keywords

Deep learning; Kidney disease; Long short term memory; Pattern mixture

Sustainable Development Goals 2023

SciVal Topics

Metrics

References (40)

[View in search results format](#)

All Export Print E-mail Save to PDF Create bibliography

SciVal Topics

Metrics

- 1 Adhikari, L., Ozragat-Baslanlı, T., Ruppert, M., Madushani, R.W.M.A., Paliwal, S., Hashemighouchani, H., Zheng, F., (..), Bihorac, A.

Improved predictive models for acute kidney injury with IDEA: Intraoperative data embedded analytics

(2019) *PLoS ONE*, 14 (4), art. no. e0214904. Cited 41 times.
<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0214904&type=printable>
doi: 10.1371/journal.pone.0214904

[View at Publisher](#)

- 2 Ahn, H., Sun, K., Kim, K.P.

Comparison of missing data imputation methods in time series forecasting (Open Access)

(2021) *Computers, Materials and Continua*, 70 (1), pp. 767-779. Cited 8 times.
<https://www.techscience.com/cmc/v70n1/44403>

[View at Publisher](#)

SciVal Topics

Metrics

- 3 Alfieri, F., Ancona, A., Triepi, G., Crosetto, D., Randazzo, V., Paviglianiti, A., Pasero, E., (...), Fagugli, R.M.

A deep-learning model to continuously predict severe acute kidney injury based on urine output changes in critically ill patients ([Open Access](#))

(2021) *Journal of Nephrology*, 34 (6), pp. 1875-1886. Cited 12 times.

<http://www.springer.com/medicine/nephrology/journal/40620>

doi: 10.1007/s40620-021-01046-6

[View at Publisher](#)

- 4 Alfieri, F., Ancona, A., Triepi, G., Randazzo, V., Paviglianiti, A., Pasero, E., Vecchi, L., (...), Fagugli, R.M.

External validation of a deep-learning model to predict severe acute kidney injury based on urine output changes in critically ill patients

(2022) *Journal of Nephrology*, 35 (8), pp. 2047-2056.

<https://www.springer.com/journal/40620>

doi: 10.1007/s40620-022-01335-8

SciVal Topics

Metrics

[View at Publisher](#)

- 5 Anand, A., Rani, S., Anand, D., Aljahdali, H.M., Kerr, D.

An efficient CNN-based deep learning model to detect malware attacks (CNN-DMA) in 5G-IoT healthcare applications ([Open Access](#))

(2021) *Sensors*, 21 (19), art. no. 6346. Cited 21 times.

<https://www.mdpi.com/1424-8220/21/19/6346/pdf>

doi: 10.3390/s21196346

[View at Publisher](#)

- 6 Asniar, Maulidevi, N.U., Surendro, K.

SMOTE-LOF for noise identification in imbalanced data classification

(2022) *Journal of King Saud University - Computer and Information Sciences*, Part B 34 (6), pp. 3413-3423. Cited 26 times.

www.journals.elsevier.com/journal-of-king-saud-university-computer-and-information-sciences/

doi: 10.1016/j.jksuci.2021.01.014

[View at Publisher](#)

- 7 Bhaskar, N., Suchetha, M., Philip, N.Y.

Time Series Classification-Based Correlational Neural Network with Bidirectional LSTM for Automated Detection of Kidney Disease

(2021) *IEEE Sensors Journal*, 21 (4), art. no. 9212377, pp. 4811-4818. Cited 16 times.

<http://ieeexplore.ieee.org.mapua.idm.oclc.org/xpl/RecentIssue.jsp?punumber=7361>

doi: 10.1109/JSEN.2020.3028738

[View at Publisher](#)

- 8 Bhatraju, P.K., Cohen, M., Nagao, R.J., Morrell, E.D., Kosamo, S., Chai, X.-Y., Nance, R., (...), Wurfel, M.M.

Genetic variation implicates plasma angiopoietin-2 in the development of acute kidney injury sub-phenotypes ([Open Access](#))

(2020) *BMC Nephrology*, 21 (1), art. no. 284. Cited 17 times.

<http://www.biomedcentral.com/bmcnephrol/>

doi: 10.1186/s12882-020-01935-1

[View at Publisher](#)

- 9 Chen, N., Li, M., Liu, H.

Comparison of maximum likelihood approach, Diggle–Kenward selection model, pattern mixture model with MAR and MNAR dropout data ([Open Access](#))

(2020) *Communications in Statistics: Simulation and Computation*, 49 (7), pp. 1746-1767. Cited 3 times.

<http://www.tandf.co.uk/journals/titles/03610918.asp>

doi: 10.1080/03610918.2018.1506028

[View at Publisher](#)

- 10 Dandil, E., Karaca, S.

Detection of pseudo brain tumors via stacked LSTM neural networks using MR spectroscopy signals ([Open Access](#))

(2021) *Biocybernetics and Biomedical Engineering*, 41 (1), pp. 173-195. Cited 23 times.

<http://www.sciencedirect.com.mapua.idm.oclc.org/science/journal/02085216>

doi: 10.1016/j.bbe.2020.12.003

SciVal Topics

Metrics

[View at Publisher](#)

- 11 Deng, Y.-H., Luo, X.-Q., Yan, P., Zhang, N.-Y., Liu, Y., Duan, S.-B.
Outcome prediction for acute kidney injury among hospitalized children via eXtreme Gradient Boosting algorithm (Open Access)

(2022) *Scientific Reports*, 12 (1), art. no. 8956. Cited 6 times.
www.nature.com/srep/index.html
doi: 10.1038/s41598-022-13152-x

[View at Publisher](#)

SciVal Topics

Metrics

- 12 Fiero, M.H., Hsu, C.-H., Bell, M.L.
A pattern-mixture model approach for handling missing continuous outcome data in longitudinal cluster randomized trials

(2017) *Statistics in Medicine*, 36 (26), pp. 4094-4105. Cited 12 times.
[http://onlinelibrary.wiley.com.mapua.idm.oclc.org/journal/10.1002/\(ISSN\)1097-0258](http://onlinelibrary.wiley.com.mapua.idm.oclc.org/journal/10.1002/(ISSN)1097-0258)
doi: 10.1002/sim.7418

[View at Publisher](#)

- 13 Gao, W., Wang, J., Zhou, L., Luo, Q., Lao, Y., Lyu, H., Guo, S.
Prediction of acute kidney injury in ICU with gradient boosting decision tree algorithms (Open Access)

(2022) *Computers in Biology and Medicine*, 140, art. no. 105097. Cited 10 times.
www.elsevier.com/locate/combiomed
doi: 10.1016/j.combiomed.2021.105097

[View at Publisher](#)

SciVal Topics

Metrics

- 14 Hiriyannaiah, S., G M, S., M H M, K., Srinivasa, K.G.
A comparative study and analysis of LSTM deep neural networks for heartbeats classification

(2021) *Health and Technology*, 11 (3), pp. 663-671. Cited 7 times.
<http://www.springer.com/engineering/biomedical+eng/journal/12553>
doi: 10.1007/s12553-021-00552-8

[View at Publisher](#)

- 15 Hoste, E., Bihorac, A., Al-Khadafji, A., Ortega, L.M., Ostermann, M., Haase, M., Zacharowski, K., (...), Kwan, T.
Identification and validation of biomarkers of persistent acute kidney injury: the RUBY study (Open Access)

(2020) *Intensive Care Medicine*, 46 (5), pp. 943-953. Cited 91 times.
link.springer.de/link/service/journals/00134/index.htm
doi: 10.1007/s00134-019-05919-0

[View at Publisher](#)

SciVal Topics

Metrics

- 16 Hu, C., Tan, Q., Zhang, Q., Li, Y., Wang, F., Zou, X., Peng, Z.
Application of interpretable machine learning for early prediction of prognosis in acute kidney injury (Open Access)

(2022) *Computational and Structural Biotechnology Journal*, 20, pp. 2861-2870. Cited 6 times.
www.csbj.org
doi: 10.1016/j.csbj.2022.06.003

[View at Publisher](#)

- 17 Jia, H.-M., Huang, L.-F., Zheng, Y., Li, W.-X.
Diagnostic value of urinary tissue inhibitor of metalloproteinase-2 and insulin-like growth factor binding protein 7 for acute kidney injury: A meta-analysis (Open Access)

(2017) *Critical Care*, 21 (1), art. no. 77. Cited 44 times.
<http://ccforum.com/content/17>
doi: 10.1186/s13054-017-1660-y

[View at Publisher](#)

SciVal Topics

Metrics

- 18 Kashani, K., Cheungpasitporn, W., Ronco, C.
Biomarkers of acute kidney injury: The pathway from discovery to clinical adoption (Open Access)

(2017) *Clinical Chemistry and Laboratory Medicine*, 55 (8), pp. 1074-1089. Cited 194 times.
<http://www.reference-global.com/toc/cclm/current>
doi: 10.1515/cclm-2016-0973

[View at Publisher](#)

- 19 Kellum, J.A., Prowle, J.R.
Paradigms of acute kidney injury in the intensive care setting (Open Access)

(2018) *Nature Reviews Nephrology*, 14 (4), pp. 217-230. Cited 206 times.
<http://www.nature.com/mapua.idm.oclc.org/nrneph/archive/index.html>
doi: 10.1038/nrneph.2017.184

SciVal Topics

[View at Publisher](#)

Metrics

-
- 20 Landi, F., Baraldi, L., Cornia, M., Cucchiara, R.
Working Memory Connections for LSTM (Open Access)

(2021) *Neural Networks*, 144, pp. 334-341. Cited 32 times.
www.elsevier.com/locate/neunet
doi: 10.1016/j.neunet.2021.08.030

[View at Publisher](#)

-
- 21 Li, X.
A Deep Learning Program to Predict Acute Kidney Injury (Open Access)

(2022) *Studies in Health Technology and Informatics*, 289, pp. 97-101. Cited 2 times.
<http://www.iospress.nl/bookseries/studies-in-health-technology-and-informatics/>
ISBN: 978-164368250-1
doi: 10.3233/SHTI210868

SciVal Topics

[View at Publisher](#)

Metrics

-
- 22 Lima, C., Macedo, E.
Urinary biochemistry in the diagnosis of acute kidney injury (Open Access)

(2018) *Disease Markers*, 2018, art. no. 4907024. Cited 43 times.
<http://www.hindawi.com/journals/dm/contents/>
doi: 10.1155/2018/4907024

[View at Publisher](#)

-
- 23 Liu, L.J., Ortiz-Soriano, V., Neyra, J.A., Chen, J.
KGDAL: Knowledge graph guided double attention LSTM for rolling mortality prediction for AKI-D patients (Open Access)

(2021) *Proceedings of the 12th ACM Conference on Bioinformatics, Computational Biology, and Health Informatics, BCB 2021*. Cited 3 times.
<http://dl.acm.org/mapua.idm.oclc.org/citation.cfm?id=3459930>
ISBN: 978-145038450-6
doi: 10.1145/3459930.3469513

SciVal Topics

[View at Publisher](#)

Metrics

-
- 24 Liu, J., Wu, J., Liu, S., Li, M., Hu, K., Li, K.
Predicting mortality of patients with acute kidney injury in the ICU using XGBoost model (Open Access)

(2021) *PLoS ONE*, 16 (2 February), art. no. e0246306. Cited 42 times.
<https://journals.plos.org/plosone/article/file?id=10.1371/journal.pone.0246306&type=printable>
doi: 10.1371/journal.pone.0246306

[View at Publisher](#)

-
- 25 Lu, J.Y., Zhu, J., Zhu, J., Duong, T.Q.
Long-short-term memory machine learning of longitudinal clinical data accurately predicts acute kidney injury onset in COVID-19: a two-center study (Open Access)

(2022) *International Journal of Infectious Diseases*, 122, pp. 802-810. Cited 4 times.
<https://www.journals.elsevier.com/international-journal-of-infectious-diseases>
doi: 10.1016/j.ijid.2022.07.034

[View at Publisher](#)

SciVal Topics

Metrics

- 26 Maaliw, R.R., Mabunga, Z.P., Villa, F.T.
Time-Series Forecasting of COVID-19 Cases Using Stacked Long Short-Term Memory Networks (Open Access)

(2021) *2021 International Conference on Innovation and Intelligence for Informatics, Computing, and Technologies, 3ICT 2021*, pp. 435-441. Cited 6 times.
<http://ieeexplore.ieee.org.mapua.idm.oclc.org/xpl/mostRecentIssue.jsp?punumber=9581281>
ISBN: 978-166544032-5
doi: 10.1109/3ICT53449.2021.9581688

[View at Publisher](#)

-
- 27 Marx, D., Metzger, J., Pejchinovski, M., Gil, R.B., Frantzi, M., Latosinska, A., Belczacka, I., (...), Herget-Rosenthal, S.

SciVal Topics