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New Chemistry News

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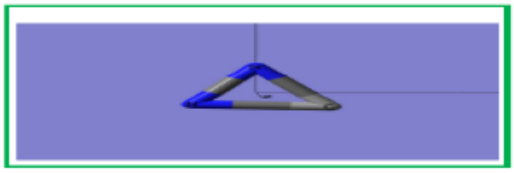
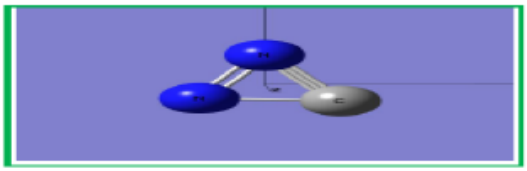


New News of Chem (NNC)



ChemNewsNew (CNN)

CNN – 63a

Iam (Intelligence Augmented /Assisted Method(s))

Caps NN (CAPSule Neural Nets)

Research Literature References -02$

Information Source	sciencedirect.com;	
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Dedicated to Smt. R. Adi lakshmi (mother of RSR)
on her hundredth birth anniversary

Conspectus: **CAPSule(of Neurons) Net in Computational paradigmis a buzz word today occupying a niche in Artificial intelligence.**
The capsule consists of more than one neuron represented as a vector or matrix (first and second order tensors). Each neuron of a capsule contains scalar (zero order tensor) postural data of an object or sub-object (entity or part of it). Each capsule layer consists of a finite number of capsules. Two or more layers make a capsule net. Each and every sub-discipline of Medicine, engineering, technology, commerce reaped more accuracy in results compared to state-of-art methods viz., machine learning procedures, Convolution neural netsetc.The tasks handled are object detection, classification/discrimination, segmentation,multivariate timeseries forecasting multi-step ahead.
The data types well researched are images (2D/3D; black/white, colour (RGB)), videos, scenes apart from numerical and literal sequence strings.
The evolution of capsule net architecture, learning/routing modules and hybridisation with other successful approaches like transformers brought renaissance in the capsule-net-frames.

Keywords: Artificial intelligence (AI); Capsule Neural Nets—Hinton—Biological inspiration; Medicine-Chemistry; Classification; segmentation; Image analysis-in-Medical diagnosis;

CNN : [C [Computations; Computer; Chemistry, Cell, Celestial,Cerebrum] NN [New News; News New; Neural Nets; Nature News; News of Nature;]]
Fits : [Figure Image Table Script;]

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$ ***CNN–38 Capsule Net -Ref. 01; JOAC., 2021, 10 (2): 235-239***

Select references: 2024 Jan -to-May

Capsule Neural Nets (CapsN(N))

CapsN	Sound event detection	Sound event	2024-01
Weakly labeled sound event detection with a capsule-transformer model			Ti
Digital Signal Processing, 146(2024)104347 https://doi.org/10.1016/j.dsp.2023.104347			Jo
Kanghao Li and Shuguo Yang and Li Zhao and Wenwu Wang			Au
o Sound event detection, Audio tagging o Gated convolution o Transformer o Capsule network			Keywords

CapsN	Sentiment analysis	Chinese sarcasm	2024-02
Product feature sentiment analysis based on GRU-CAP considering Chinese sarcasm recognition			Ti
Expert Systems with Applications, 241(2024)122512 https://doi.org/10.1016/j.eswa.2023.122512			Jo
Zeng Wang and Shi-jie Hu and Wei-dong Liu			Au
o Product online reviews, Sarcasm detection, o o Gate recurrent units, o Capsule neural network, o o Produc feature extraction, o Sentiment analysis			Keywords

CapsN	Sequential recommendation		2024-03
Accurate multi-interest modeling for sequential recommendation with attention and distillation capsule network			Ti
Expert Systems with Applications, 243(2024)122887 https://doi.org/10.1016/j.eswa.2023.122887			Jo
Yuhang Cheng and Yongquan Fan and Yitong Wang and Xianyong Li			Au
o Multi-interest, Long/Short-term preference, Sequential recommendation, o Capsule network			Keywords

CapsN	pattern parsing		2024-04
A coarse-to-fine pattern parser for mitigating the issue of drastic imbalance in pixel distribution			Ti

Pattern Recognition, 148(2024)110143 https://doi.org/10.1016/j.patcog.2023.110143	Jo
Zhongqi Lin and Xudong Jiang and Zengwei Zheng	Au
o Pattern parsing, Unbalanced distribution of pixels, o Graph attention o Capsule network	Keywords

CapsN	Malware		2024-05
FACILE: A capsule network with fewer capsules and richer hierarchical information for malware image classification			Ti
Computers & Security, 137(2024)103606 https://doi.org/10.1016/j.cose.2023.103606			Jo
Binghui Zou and Chunjie Cao and Longjuan Wang and Sizheng Fu and Tonghua Qiao and Jingzhang Sun			Au
o Malware classification o , Feature extraction o Capsule network o Dynamic convolution, o Dynamic routing			Keywords

CapsN	Med	Gastrointestinal diseases	2024-06
Deep learning-enabled detection and localization of gastrointestinal diseases using wireless-capsule endoscopic images			Ti
Biomedical Signal Processing and Control, 93(2024)106125 https://doi.org/10.1016/j.bspc.2024.106125			Jo
Deepak Bajhaiya and Sujatha {Narayanan Unni}			Au
o Gastrointestinal disease, o Wireless capsule endoscopy, o Convolutional neural network, Deep learning, o xAI: GradCAM, Guided-GradCAM			Keywords

CapsN	Visual saliency		2024-07
Deep unsupervised part-whole relational visual saliency			Ti
Neurocomputing, 563(2024)126916 https://doi.org/10.1016/j.neucom.2023.126916			Jo
Yi Liu and Xiaohui Dong and Dingwen Zhang and Shoukun Xu			Au
o Unsupervised salient object detection, o Part-object relationship, o Consistency-aware fusion strategy			Keywords

CapsN	Fruit hardness	Robot hands	2024-08
Assessing fruit hardness in robot hands using electric gripper actuators with tactile sensors			Ti

Sensors and Actuators A: Physical, 365(2024)114843 https://doi.org/10.1016/j.sna.2023.114843	Jo
Song Li and Wei Sun and QiaoKang Liang and ChongPei Liu and Jian Liu	Au
o Hardness recognition, Tactile sensors, o Fruit non-destructive grabbing, Robot hand o Capsule network,	Keywords

CapsN	adaptive feedback network		2024-09
Uncertainty-aware image inpainting with adaptive feedback network			Ti
Expert Systems with Applications, 235(2024)121148 https://doi.org/10.1016/j.eswa.2023.121148			Jo
Xin Ma and Xiaoqiang Zhou and Huaibo Huang and Gengyun Jia and Yaohui Wang and Xinyuan Chen and Cunjian Chen			Au
o Image inpainting, o Uncertainty estimation, o Feedback mechanism			Keywords

CapsN	EEG	emotion	2024-10
ICaps-ResLSTM: Improved capsule network and residual LSTM for EEG emotion recognition			Ti
Biomedical Signal Processing and Control, 87(2024)105422 https://doi.org/10.1016/j.bspc.2023.105422			Jo
Cunhang Fan and Heng Xie and Jianhua Tao and Yongwei Li and Guanxiong Pei and Taihao Li and Zhao Lv			Au
o Emotion recognition o Electroencephalogram o Capsule network, o Residual Long-Short Term Memory			Keywords

CapsN	Med	segmentation	2024-11
Chapter 3 - CapsNet for medical image segmentation			Ti
bookDeep Learning for Medical Image Analysis (Second Edition)(2024)75-97 https://doi.org/10.1016/B978-0-32-385124-4.00011-8			Jo
Minh Tran and Viet-Khoa Vo-Ho and Kyle Quinn and Hien Nguyen and Khoa Luu and Ngan Le			Au
o Capsule network, o Medical image, Segmentation			Keywords

CapsN	Agreement routing		2024-12
A non-iterative capsule network with interdependent agreement routing			Ti
Expert Systems with Applications, 238(2024)122284 https://doi.org/10.1016/j.eswa.2023.122284			Jo
Ru Zeng and Yuzhang Qin and Yan Song			Au

o Capsule network, Interdependent agreement routing, Affine transformation o robustness, o Image classification	Keywords

CapsN	Classification	Iot/non-iot devices	2024-13
An efficient deep learning mechanisms for IoT/Non-IoT devices classification and attack detection in SDN-enabled smart environment			Ti
Computers & Security, 141(2024)103818 https://doi.org/10.1016/j.cose.2024.103818			Jo
P. Malini and Dr. K.R. Kavitha			Au
o SDN-enabled FiWi IoT network, o Dynamic resource allocation, o o Transformer-driven deep intelligent model, o Slice attention mechanism, o Deep learning, o Chaotic Seagull optimization capsule autoencoder model			Keywords

CapsN	Sleep stage	classification	2024-14
CTCNet: A CNN Transformercapsule network for sleep stage classification			Ti
Measurement, 226(2024)114157 https://doi.org/10.1016/j.measurement.2024.114157			Jo
Weijie Zhang and Chang Li and Hu Peng and Heyuan Qiao and Xun Chen			Au
o Electroencephalogram (EEG), o Sleep stage classification, o o CNN, o Transformer, o Capsule network			Keywords

CapsN	Med Prediction	Remaining useful life	2024-15
Sensor-aware CapsNet: Towards trustworthy multisensory fusion for remaining useful life prediction			Ti
Journal of Manufacturing Systems, 72(2024)26-37 https://doi.org/10.1016/j.jmsy.2023.11.009			Jo
Dongpeng Li and Jiaxian Chen and Ruyi Huang and Zhuyun Chen and Weihua Li			Au
o Uncertainty quantification, o RUL prediction, o Trustworthy AI, Capsule neural network o Multisensory fusion,			Keywords

CapsN	Topological structure parsing		2024-16
Reducing vulnerable internal feature correlations to enhance efficient topological structure parsing			Ti

Expert Systems with Applications, 247(2024)123268 https://doi.org/10.1016/j.eswa.2024.123268	Jo
Zhongqi Lin and Zengwei Zheng and Jingdun Jia and Wanlin Gao	Au
o Face parsing, Human parsing, o Graph attention, o Capsule network, o Expectation-maximum routing agreement	o Keywords

CapsN	Med	breast cancer detection	2024-17
An enhanced multi-scale deep convolutional orchard capsule neural network for multi-modal breast cancer detection			Ti
Healthcare Analytics, 5(2024) 100298 https://doi.org/10.1016/j.health.2023.100298			Jo
Sangeeta Parshionikar and Debnath Bhattacharyya			Au
o Deep convolutional neural network, o Capsule network, Optimization, o o Breast cancer, o Feature extraction, Classification			Keywords

CapsN	RNA		2024-18
An interpretable deep learning model predicts RNA-small molecule binding sites			Ti
Future Generation Computer Systems, 2024 https://doi.org/10.1016/j.future.2024.05.029			Jo
Wenyu Xi and Ruheng Wang and Li Wang and Xiucai Ye and Mingyang Liu and Tetsuya Sakurai			Au
o RNA–small molecule binding sites prediction, o RNA secondary structures o Interpretable --Deep learning, o Capsule network,			Keywords

CapsN	Emotion		2024-19
MA-CapsNet-DA: Speech emotion recognition based on MA-CapsNet using data augmentation			Ti
Expert Systems with Applications, 244(2024)122939 https://doi.org/10.1016/j.eswa.2023.122939			Jo
Huiyun Zhang and Heming Huang and Henry Han			Au
o Data augmentation, Feature extraction, o Speech emotion recognition, o Capsule network, Deep learning			Keywords

CapsN	Hyperspectral image		2024-20
Two-Stream spectral-spatial convolutional capsule network for Hyperspectral image classification			Ti

International Journal of Applied Earth Observation and Geoinformation, 127(2024)103614 https://doi.org/10.1016/j.jag.2023.103614	Jo
Han Zhai and Jie Zhao	Au
o Hyperspectral image classification, o Structural information mining module spectral-spatial convolutional o Convolutional capsule network, o Two-stream architecture,	Keywords

CapsN	ATM		2024-21
Recognition and detection of unusual activities in ATM using dual-channelcapsule generative adversarial network			Ti
Expert Systems with Applications, 247(2024) 122987 https://doi.org/10.1016/j.eswa.2023.122987			Jo
K. Kajendran and J. {Albert Mayan}			Au
o Human activity recognition Automatic teller machine o Super pixel motion detection algorithm, o Fast discrete curvelet transform, o Deep convolutional spiking neural network,			Keywords

CapsN	Emotion-cause		2024-22
MV-SHIF: Multi-view symmetric hypothesis inference fusion network for emotion-cause pair extraction in documents			Ti
Neural Networks, 175 (2024) 106283 https://doi.org/10.1016/j.neunet.2024.106283			Jo
Cheng Yang and Hua Zhang and Bi Chen and Bo Jiang and Ye Wang			Au
o Emotion-cause pair extraction, Textual entailment, Multi-view hypothesis inference, o Information fusion o Capsule neural network			Keywords

CapsN	Med	lung disease classification	2024-23
MCFCN: Multi-scale capsule-weighted fusion classification network for lung disease classification based on chest CT scans			Ti
Meta-Radiology, 2(2024)100070 https://doi.org/10.1016/j.metrad.2024.100070			Jo
Ao Liu and Shaowu Liu and Cuihong Wen			Au
o Chest CT scan, o Deep learning, Feature pyramid networks, o Capsule network, Transfer learning, o Attention mechanism			Keywords

CapsN	Classification	Image	2024-24
H-CapsNet: A capsule network for hierarchical image classification			Ti

Pattern Recognition, 147(2024) 110135 https://doi.org/10.1016/j.patcog.2023.110135	Jo
Khondaker Tasrif Noor and Antonio Robles-Kelly	Au
o Hierarchical image classification, o Capsule networks o Convolutional neural networks, o Deep learning	Keywords

CapsN	Med	Lung sound recognition	2024-25
Open-set lung sound recognition model based on conditional Gaussian capsule network and variational time–frequency feature reconstruction			Ti
Biomedical Signal Processing and Control, 87(2024)105470 https://doi.org/10.1016/j.bspc.2023.105470			Jo
Yixuan Zhang and Jingye Zhang and Lukui Shi			Au
o Lung sound recognition, o Open-set recognition, o Variational autoencoder, Feature reconstruction			Keywords

CapsN	Pattern parsing		2024-26
FCPN: Pruning redundant part-whole relations for more streamlined pattern parsing			Ti
Neural Networks, 174(2024) 106258 https://doi.org/10.1016/j.neunet.2024.106258			Jo
Zhongqi Lin and Linye Xu and Zengwei Zheng			Au
o Elimination of connectivity, o Semantic segmentation o Graph attention, o Capsule network			Keywords

CapsN	Human gait	Recognition	2024-27
DCapsNet: Deep capsule network for human activity and gait recognition with smartphone sensors			Ti
Pattern Recognition, 147(2024)110054 https://doi.org/10.1016/j.patcog.2023.110054			Jo
AhmadrezaSezavar and Randa Atta and Mohammed Ghanbari			Au
o Gait recognition, Human activity recognition, o Deep Capsule network, o Smartphone sensors			Keywords

CapsN	EEG	emotion recognition $	2024-28
Light-weight residual convolution-based capsule network for EEG emotion recognition			Ti
Advanced Engineering Informatics, 61(2024)102522			Jo

https://doi.org/10.1016/j.aei.2024.102522	
Cunhang Fan and Jinqin Wang and Wei Huang and Xiaoke Yang and Guangxiong Pei and Taihao Li and Zhao Lv	Au
o Electroencephalogram (EEG), Light weight, o Emotion recognition o Residual convolution, Capsule network,	Keywords

CapsN	Med	diabetic retinopathy grading	2024-29
GNN-fused CapsNet with multi-head prediction for diabetic retinopathy grading			Ti
Engineering Applications of Artificial Intelligence, 133(2024)107994 https://doi.org/10.1016/j.engappai.2024.107994			Jo
Yongjia Lei and Shuyuan Lin and Zhiying Li and Yachao Zhang and Taotao Lai			Au
o Diabetic retinopathy grading o Capsule network, Graph neural network, o Feature fusion, o Transfer learning			Keywords

CapsN	Med	Ataxia Diagnosing	2024-30
Analysis of static plantar pressure data with capsule networks: Diagnosing ataxia in MS patients with a deep learning-based approach			Ti
Multiple Sclerosis and Related Disorders, 83(2024)105465 https://doi.org/10.1016/j.msard.2024.105465			Jo
ÇağlaDanacı and Merve Parlak Baydoğan and Seda Arslan Tuncer			Au
o Ataxia, Multiple sclerosis, Static plantar pressure, EDSS o DL o CapsN			Keywords

CapsN		lifetime prediction	2024-31
Multiscale capsule networks with attention mechanisms based on domain-invariant properties for cross-domain lifetime prediction			Ti
Digital Signal Processing, 146 (2024) 104368 https://doi.org/10.1016/j.dsp.2023.104368			Jo
Zhiwu Shang and Zehua Feng			Au
o Multi-level domain adaptation, o Multiscale capsule network, o Attention mechanism, o Unsupervised learning			Keywords

CapsN	HIV		2024-32
MLCapsNet+: A multi-capsule network for the identification of the HIV ISs along important sequence positions			Ti

Image and Vision Computing, 145(2024)104990 https://doi.org/10.1016/j.imavis.2024.104990	Jo
Minakshi Boruah and Ranjita Das	Au
o DNA sequence, HIV, Integration sites o Capsule network, o Convolutional neural network, Deep neural network,	Keywords

CapsN	Leakage diagnosis	Natural gas pipeline	2024-33
Leakage diagnosis of natural gas pipeline based on multi-source heterogeneous information fusion			Ti
International Journal of Pressure Vessels and Piping, 209(2024)105202 https://doi.org/10.1016/j.ijpvp.2024.105202			Jo
Xingyuan Miao and Hong Zhao			Au
o Pipeline leakage diagnosis, Potential leakage, Multi-source heterogeneous information fusion, o Deep reinforcement learning, Deep Q-network			Keywords

CapsN	Scientific Creative-Ability of Subjects		2024-34
Decoding the Scientific Creative-Ability of Subjects Using Dual Attention Induced Graph Convolutional-Capsule Network			Ti
Applied Soft Computing, (2024) 111769 https://doi.org/10.1016/j.asoc.2024.111769			Jo
Sayantani Ghosh and Amit Konar			Au
o Scientific creativity, o Electroencephalogram, o Brain connectivity, o Graph neural network, o Capsule network			Keywords

CapsN	Damage in bridges	Identification	2024-35
An intelligent framework of upgraded CapsNets with massive transmissibility data for identifying damage in bridges			Ti
Applied Soft Computing, 155(2024)111459 https://doi.org/10.1016/j.asoc.2024.111459			Jo
Shuai Li and Maosen Cao and Mahmoud Bayat and Dragoslav Sumarac and Jie Wang			Au
o Dynamic responses, Power-spectrum-density transmissibility, Damage pattern spectrum, o Bridge damage identification o Upgraded Capsules-Networks,			Keywords

CapsN	text classification	multi-label	2024-36
Label-textbi-attention capsule networks model for multi-label text classification			Ti
Neurocomputing, 588(2024)127671 https://doi.org/10.1016/j.neucom.2024.127671			Jo

Gang Wang and Yajun Du and Yurui Jiang and Jia Liu and Xianyong Li and Xiaoliang Chen and Hongmei Gao and Chunzhi Xie and Yan-li Lee	Au
o Multi-label, Text classification, Label embedding, o Capsule networks o Bi-Attention	Keywords

CapsN	sentiment analysis		2024-37
Capsule network-baseddeep ensemble transfer learning for multimodal sentiment analysis			Ti
Expert Systems with Applications, 239(2024)122454 https://doi.org/10.1016/j.eswa.2023.122454			Jo
Alireza Ghorbanali and Mohammad Karim Sohrabi			Au
o Multimodal sentiment analysis, o Transfer learning o Capsule network, o Ensemble, o Evidence theory,			Keywords

CapsN	BioChem		2024-38
PSAC-6mA: 6mA site identifier using self-attention capsule network based on sequence-positioning			Ti
Computers in Biology and Medicine, 171(2024)108219 https://doi.org/10.1016/j.compbiomed.2024.108129			Jo
Zheyu Zhou and Cuilin Xiao and Jinfen Yin and Jiayi She and Hao Duan and Chunling Liu and Xiuhao Fu and Feifei Cui and Qi Qi and Zilong Zhang			Au
o N6-methyladenine, o Capsule network, o Self-attention Deep learning,			Keywords

CapsN	Multi-step stock index	Forecasting	2024-39
1D-CapsNet-LSTM: A deep learning-based model for multi-step stock index forecasting			Ti
Journal of King Saud University - Computer and Information Sciences, 36, 2(2024) 101959 https://doi.org/10.1016/j.jksuci.2024.101959			Jo
Cheng Zhang and Nilam Nur Amir Sjarif and Roslina Ibrahim			Au
o Stock index, o Time series, Multi-step forecasting o 1D-CapsNet-LSTM, Deep learning			Keywords

CapsN	Med	Emotion EEG	2024-40
o DA-CapsNet: A multi-branch capsule network based on adversarial domain adaption for cross-subject EEG emotion recognition			Ti
Knowledge-Based Systems, 283(2024)111137 https://doi.org/10.1016/j.knosys.2023.111137			Jo

Shuaiqi Liu and Zeyao Wang and Yanling An and Bing Li and Xinrui Wang and Yudong Zhang	Au
o EEG emotion recognition, o Capsule network, o Adversarial domain adaptation, o Transfer learning	Keywords

CapsN	cluster		2024-41
Relation-dependent contrastive learning with cluster sampling for inductive relation prediction			Ti
Neurocomputing, 579 (2024)127425 https://doi.org/10.1016/j.neucom.2024.127425			Jo
Jianfeng Wu and Aolin Xiong and Sijie Mai and Haifeng Hu			Au
o Inductive relation prediction, Long-tail situation o Contrastive learning, o Knowledge graph completion, o Capsule network			Keywords

CapsN	Global routing		2024-42
Global routing between capsules			Ti
Pattern Recognition, 148 (2024)110142 https://doi.org/10.1016/j.patcog.2023.110142			Jo
Ran Chen and Hao Shen and Zhong-Qiu Zhao and Yi Yang and Zhao Zhang			Au
o CapsNet, o Global routing, ▪ Multi-branch, ▪ Straight-through-routing			Keywords

CapsN	Med	Epidermis lesion detection	2024-43
Epidermis lesion detection via optimized distributed capsule neural network			Ti
Computers in Biology and Medicine,168 (2024)107833 https://doi.org/10.1016/j.compbiomed.2023.107833			Jo
Vineet Kumar Dubey and Vandana Dixit Kaushik			Au
o Epidermis lesion detection, Hybrid tetra pattern o Hybrid deep descriptor o o Golden hawk optimization o Distributed capsule neural network			Keywords

CapsN	transformer Model		2024-44

Weakly labeled sound event detection with a capsule-transformer model	Ti
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Ganbayar Batchuluun and Se Hyun Nam and Kang Ryoung Park	Au
Sound event detection, Audio tagging Gated convolution, Transformer, Capsule network	Keywords

CapsN	Diabetes	Classification	2024-44
Diabetes classification using MapReduce-based capsule network			Ti
AUTOMATIKA, 2024, 65,. 1, 73–81 https://doi.org/10.1080/00051144.2023.2284031			Jo
G. Aruna and C. N. Marimuthub			Au
big data; network; framework			Keywords

CapsN	Traffic	Classification	2024-45
CapsuleFormer: A Capsule and Transformer combined model forDecentralized Application encrypted traffic classification			Ti
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Xiang Zhou, Xi Xiao, Qing Li, ,Bin Zhang, Xiapu Luo			Au
Blockchain			Keywords

CapsN	Transformer	MachLrn	Epilepticseizure		2024-46
A comparative study of CNN-capsule-net,CNN-transformer encoder, and Traditionalmachine learning algorithms to classify epilepticseizure					Ti
BMC Medical Informatics and Decision Making (2024) 24:60 https://doi.org/10.1186/s12911-024-02460-z					Jo
Sergio Alejandro Holguin-Garcia1, Ernesto Guevara-Navarro, Alvaro Eduardo Daza-Chica,Maria Alejandra Patiño-Claro, Harold Brayan Arteaga-Arteaga, onzalo A. Ruz, Reinel Tabares-Soto1, andMario Alejandro Bravo-Ortiz					Au
Electroencephalograms, Machine learning					Keywords

CapsN			2024-47
Capsule NeuralNetwork (CNN) based Hybrid Approach for IdentifyingSarcasm in Reddit Dataset			Ti
IgMin Res. Jan 12, 2024; 2(1): 013-017.IgMin ID: igmin137; DOI: 10.61927/igmin137; Available at:www.igminresearch.com/articles/pdf/igmin137.pdf			Jo
Faseeh M, Jamil H. A			Au
LSTM; Sentiment; Word2vec;Tf-IDF			Keywords

CapsN	Transformer	Attention	Highway	Visibility; atmospheric	2024-48
ATCNet: A Novel Approachfor Predicting Using Attention-EnhancedTransformer–Capsule Networks					Ti
Electronics 2024, 13, 920. doi.org/10.3390/electronics13050920					Jo
Li, W.; Yang, X.; Yuan, G.;Xu, D.					Au
meteorological disaster; forecasting; deep learning;					Keywords

CapsN			2024-49
An optimized capsule neural networksfor tomato leaf disease classification			Ti
EURASIP Journal on Image and Video Processing (2024) 2024:2 https://doi.org/10.1186/s13640-023-00618-9			Jo
Lobna M. Abouelmagd , Mahmoud Y. Shams, Hanaa Salem Marie and Aboul Ella Hassanien			Au
Drone, Adam optimizer			Keywords

CapsN	Transformer Deep	Multivariate Time Series	Classification	2024-50
DTCM: Deep Transformer Capsule Mutual Distillation for Multivariate Time Series Classification				Ti
IEEE Transactions on Cognitive and Developmental Systems (Early Access) Page(s): 1 - 17 Date of Publication: 26 February 2024 □ □ ISSN Information: DOI: 10.1109/TCDS.2024.3370219				Jo
Zhiwen Xiao ; Xin Xu ; Huanlai Xing ; Bowen Zhao ; Xinhan Wang ; Fuhong Song ; Rong Qu ; Li Feng				Au
Deep Learning, Knowledge Distillation, Mutual Learning.				Keywords

CapsN	Routing Residual Pose		2024-51
Capsule Networks With Residual Pose Routing			Ti
IEEE Transactions On Neural Networks And Learning Systems Issn 2162-237X https://doi.org/10.1109/TNNLS.2023.3347722			Jo
Yi Liu, De Cheng, Dingwen Zhang, Shoukun Xu, and Jungong Han			Au

CapsN	Matrix		Contraband detection	2024-52
Optimizing Capsule Networks for Research				Ti
International Journal of Computer Science and Information Technology Volume 2, Number 1, Year 2024,326-340 DOI: https://doi.org/10.62051/ijcsit.v2n1.34				Jo
Zhiming Yan, Xinwei Li1, Yi Yang				Au

Multi-feature extraction; Discarded Capsules	Keywords

CapsN	Lung Cancer	? Benign ? Malignant	Image	CT	2024-53
Classification of Benign and Malignancy in Lung CancerUsing Capsule Networks with Dynamic Routing Algorithmon Computed Tomography Images					Ti
Journal of Artificial Intelligence and Technology, 2024, 4, 40-48 https://doi.org/10.37965/jait.2023.0218					Jo
A. R. Bushara, R. S. Vinod Kumar, S. S. Kuma					Au

CapsN	Lightweight balanced		Porcelainfragments	Classification		Image	2024-54
LBCapsNet: a capsuleframework for image classification of porcelainfragments							Ti
Heritage Science (2024) 12:133 https://doi.org/10.1186/s40494-024-01250-0							Jo
Ruoxue Li, Guohua Geng, Xizhi Wang, Yulin Qin, Yangyang Liu, Pengbo Zhou and Haibo Zhang							Au
Cultural heritage, digitization							Keywords

CapsN	Inception-	Resnet		Image		Classification	2024-55
InceptionCapsule: Inception-Resnet and CapsuleNet with self-attention for medicalimage Classification							Ti
La Revue Gestion Et Organisation (2014)							Jo
Elham Sadeghnezhad, Sajjad Salem							Au
Gastrointestinal image Ultrasound image Breast cancer							Keywords

CapsN	Driver Head Position	Detection	2024-56
Driver Head Position Detection UsingCapsule Networks under DynamicDriving Conditions			Ti
Computers 2024,13, 66. https://doi.org/10.3390/computers13030066			Jo
Hollósi, J.; Ballagi, Á;Kovács, G.; Fischer, S.; Nagy, V. Bus			Au
Driver monitoring system; road safety;			Keywords

CapsN	Attention	LST		Next-Item	Recommendation	2024-57
BiLSTCAN: A Novel SRS-Based Bidirectional LongShort-Term Capsule Attention Networkfor Dynamic User Preference andNext-Item Recommendation						Ti
IEEE Access 12, 2024, 6879-6899						Jo
NikornKannikaklang ,WachirawutThamviset ,And SartraWongthanavasu						Au
BiLSTM, dynamic user preference,						Keywords

CapsN	BERT language model		5G User perception	Detection	2024-58
Research on 5G User PerceptionDetection and Experience ImprovementOptimization Based on Capsule Network					Ti
International Journal of Interdisciplinary Telecommunications and Networking Volume 16, Issue 1,					Jo
JianTong Yu, Li Li,					Au

CapsN	Health Status	Recognition	2024-59
Joint-Module Health Status Recognition for an Unmanned Platform: A Time–Frequency Representation and Extraction Network-Based Approach			Ti
Machines2024,12(1), 79; https://doi.org/10.3390/machines12010079			Jo
Songbai Zhu,GuolaiYang,Sumian Song, Ruilong DuandHaihui Yuan			Au

Vision transformer	CNN	Attention		Disease	Detection		Images	Capsule Endoscopy	2024-60
ViTCA-Net: a framework for disease detection in videocapsule endoscopy images using a vision transformerand convolutional neural network with a specific attention mechanism									Ti
Multimedia Tools and Applications, 2024, https://doi.org/10.1007/s11042-023-18039-1									Jo
Yassine Oukdach · Zakaria Kerkaou, Mohamed El Ansari, Lahcen Koutti·Ahmed Fouad El Ouafdi, Thomas De Lange									Au
✓ Features extraction · ✓ Gastrointestinal disease detection									Keywords

CapsN	Rapid tri-attention		Breast cancer	Classification		Images	Histology	2024-61
Rapid tri-net: breast cancer classification from histology images using rapid tri-attention network								Ti
Multimedia Tools and Applications17 (2024)								Jo
Pallavi Bhanudas SalunkhePravin Sahebrao Patil								Au

CapsN	Self-Attention		EmotionRecognition		EEG	2024-62
Multi-Region and Multi-BandElectroencephalogram EmotionRecognition Based on Self-Attentionand Capsule Network						Ti
Appl. Sci.2024, 14, 702. https://doi.org/10.3390/app14020702						Jo
Ke, S.; Ma, C.; Li, W.; Lv, J.;Zou, L.						Au
✓ Brain region; ✓ frequency band						Keywords

CapsN	3D		Large-ScalePlace	Recognition		2024-63

CapsLoc3D: Point Cloud Retrieval for Large-ScalePlace Recognition Based on 3D Capsule Networks	Ti
IEEE Transactions on Intelligent Transportation Systems 16/01/2024 DOI:10.1109/TITS.2023.3346953	Jo
Jinpeng Zhang, Yunzhou Zhang Ming Liao, Rui Tian, Sonya Coleman Dermot Kerr	Au
✓ Lidar place recognition, moving object segmentation, ✓ Global localization, place feature learning.	Keywords

CapsN		Multi-Behavior	2024-64
Multi-Interest Network with Simple Diffusion for Multi-Behavior Sequential Recommendation			Ti
SIAM, 2024 734-742			Jo
Qingfeng Li† Huifang Ma∗† Wangyu Jin† Yugang Ji ‡ Zhixin			Au
Sequential Recommendation, Multi-Interest Learning, Latent Diffusion Model			Keywords

CapsN	Deep CNN	Attention-		Image	Hyperspectral		Classification	2024-65
Attention-Based Deep Convolutional CapsuleNetwork for Hyperspectral Image Classification								Ti
IEEE Access, publication 18 April 2024, date of current version 26 April 2024. Digital Object Identifier 10.1109/ACCESS.2024.3390558								Jo
Zhang Xiaoxia And Zhang Xia								Au
Spatial attention								Keywords

CapsN	BERT		Text		classification	2024-66
Text classification by BERT-Capsules						Ti
Dean&Francis Vol. 1 No. 5 (2024): Issue 5 DOI: https://doi.org/10.61173/wcg0nf17Minghui Guo						Jo
Minghui Guo						Au
representation module, probability module, reconstruction module						Keywords

CapsN	Masked		Learning	Self Supervised	2024-67
Masked Capsule Autoencoders					Ti
arXiv:2403.04724v1 [cs.CV] 7 Mar 2024					Jo
Miles Everett, Mingjun Zhong, and Georgios Leontidis					Au
. Masked ImageModelling					Keywords

CapsN		Fresh Tea Sprouts	Segmentation	2024-68
Fresh Tea Sprouts Segmentation via Capsule Network				Ti
IEICE TRANS. INF. & SYST., VOL.E107–D, NO.5 MAY 2024,728-731				Jo
Chunhua QIANy;y, Xiaoyan QINyyy, HequnQIANGy, ChangyouQINyy,and Minyang LIy,				Au
Patch-based local dynamic routing				Keywords

CapsN		Routing	Non-Iterative Cluster		2024-69
Non-Iterative Cluster Routing:Analysis and ImplementationStrategies					Ti
Appl. Sci. 2024, 14, 1706. https://doi.org/10.3390/app14051706					Jo
Pham, H.; Cheng, S.					Au
Data-dependent routing					Keywords

CapsN	Tri	Texton-	Dense		Image	Medical		Recognition	2024-70
TTDCapsNet: Tri Texton-Dense Capsule Network for complex									Ti
PLoS ONE 19(3): e0300133.2024, https://doi.org/10.1371/journal.pone.0300133									Jo
Akoto-Adjepong V, Appiah O, Mensah PK,Appiahene P									Au

CapsN	Routing Improved		Image	Hyperspectral		Classification	2024-71
An Improved Routing based Capsule Network for Classification							Ti
International Journal of Intelligent Systems and Applications in Engineering IJISAE, 2024, 12(2), 79–89							Jo
A .Thiyagarajan, M. Thenmozhi, K. Revathy							Au

CapsN	Attention Lightweight		Active Contour Snake Model		Skincancer	Classification	2024-72
An Improved Skin LesionClassification Using a HybridApproach with Active Contour SnakeModel and Lightweight Attention-Guided Capsule Networks							Ti
Diagnostics 2024, 14, 636 . https://doi.org/10.3390/diagnostics14060636							Jo
Behara, K.; Bhero, E.; Agee,J.T							Au

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Capsule Processing Units (CPU) Nets

CPU_nets

CapsN	Data hiding		2023-01
Data hiding during image processing using capsule networks			Ti
Neurocomputing, 537(2023)49-60 https://doi.org/10.1016/j.neucom.2023.03.041			Jo
Zichi Wang and Guorui Feng and Hanzhou Wu and Xinpeng Zhang			Au
o Data hiding, Image processing, o Capsule network			Keywords

CapsN	Sleep staging	EEG-	2023-02
EEG-based sleep staging via self-attention based capsule network with Bi-LSTM model			Ti
Biomedical Signal Processing and Control, 86(2023) 105351 https://doi.org/10.1016/j.bspc.2023.105351			Jo
Jin Chen and Zhihui Han and Heyuan Qiao and Chang Li and Hu Peng			Au
o Sleep staging, o Single-channel EEG, o Long short-term memory, o Deep learning o Capsule network, ▪ Self-attention routing,			Keywords

CapsN	Mechanical fault	intelligent diagnosis	2023-03
Mechanical fault intelligent diagnosis using attention-based dual-scale feature fusion capsule network			Ti
Measurement, 207(2023) 112345 https://doi.org/10.1016/j.measurement.2022.112345			Jo
Qingyu Zhang and Jimeng Li and Wanmeng Ding and Zhangdi Ye and Zong Meng			Au
o Mechanical fault diagnosis, o Capsule networks, o Attention mechanism o Dual-scale feature fusion,			Keywords

CapsN	Industrial robots	Diagnosis	2023-04
Discriminative feature learning using a multiscale convolutional capsule network from attitude data for fault diagnosis of industrial robots			Ti
Mechanical Systems and Signal Processing, 182(2023)109569 https://doi.org/10.1016/j.ymssp.2022.109569			Jo
Jianyu Long and Yaoxin Qin and Zhe Yang and Yunwei Huang and Chuan Li			Au

o Fault diagnosis, Attitude, Industrial robot, o Multiscale CNN, o Capsule network	Keywords

CapsN	CT scan images	COVID-19	2023-05
Detail-Oriented Capsule Network for classification of CT scan images performing the detection of COVID-19			Ti
Materials Today: Proceedings, 80(2023) 3709-3713 https://doi.org/10.1016/j.matpr.2021.07.367			Jo
Shraddha Modi and Rajib Guhathakurta and Sheeba Praveen and Sachin Tyagi and Saket Narendra Bansod			Au
o Coronavirus o ImageNet, o Lightweight CNN Convolution layer, o Maxpooling, o Capsules,			Keywords

CapsN			2023-06
Multi-Aspect enhanced Graph Neural Networks for recommendation			Ti
Neural Networks, 157(2023)90-102 https://doi.org/10.1016/j.neunet.2022.10.001			Jo
Chenyan Zhang and Shan Xue and Jing Li and Jia Wu and Bo Du and Donghua Liu and Jun Chang			Au
o Recommender systems, o Aspect-based sentiment analysis o Graph neural networks, o Capsule network			Keywords

CapsN	Bacteria genera	Classification	2023-07
Automated using histogram-oriented optimized capsule network			Ti
Engineering Science and Technology, an International Journal, 46(2023)101500 https://doi.org/10.1016/j.jestch.2023.101500			Jo
Jitendra P. Chaudhari and Hiren Mewada and Amit V. Patel and Keyur Mahant			Au
o Bacteria classification, o Machine learning, o Deep learning, o Capsule Network			Keywords

CapsN	Security Vulnerabilities		2023-08
SeVuc: A study on the Security Vulnerabilities of Capsule Networks against adversarial attacks			Ti
Microprocessors and Microsystems, 96(2023)104738 https://doi.org/10.1016/j.micpro.2022.104738			Jo
Alberto Marchisio and Giorgio Nanfa and Faiq Khalid and Muhammad Abdullah Hanif and Maurizio Martina and Muhammad Shafique			Au

o Artificial intelligence o Lrning o Machine learning, , o Deep learning, o Adversarial attacks, o Affine transformations, o Security, Robustness, Vulnerability	o Architecture o Deep neural networks o Convolutional neural networks, o Capsule Networks	Keywords

CapsN	Link prediction		2023-09
Link prediction approach combined graph neural network with capsule network			Ti
Expert Systems with Applications, 212(2023)118737 https://doi.org/10.1016/j.eswa.2022.118737			Jo
Xiaoyang Liu and Xiang Li and Giacomo Fiumara and Pasquale De Meo			Au
o Link prediction o Complex networks, o Graph neural network, o Capsule network ,			Keywords

CapsN	Lung nodule	Image analysis	2023-10
Chapter 9 - Meta learning for adaptable lung nodule image analysis			Ti
Learning With Medical Imaging and Health Informatics Applications, (2023)141-160 https://doi.org/10.1016/B978-0-32-399851-2.00017-X			Jo
Aryan Mobiny and Hien Van Nguyen			Au
o Lung nodule o Meta learning, o Capsule network, o Memory-augmented neural network,			Keywords

CapsN	Predicting	RNA-protein interactions	2023-11
RPI-CapsuleGAN: Predicting RNA-protein interactions through an interpretable generative adversarial capsule network			Ti
Pattern Recognition, 141(2023)109626 https://doi.org/10.1016/j.patcog.2023.109626			Jo
Yifei Wang and Xue Wang and Cheng Chen and Hongli Gao and Adil Salhi and Xin Gao and Bin Yu			Au
o RNA-protein interactions, o Multi-information fusion, o Elastic net, o Generative adversarial capsule network o Interpretable, ▪ Convolutional block attention module			Keywords

CapsN	Image reconstruction		2023-12

Capsule networks embedded with prior known support information for image reconstruction	Ti
High-Confidence Computing, 3(2023)100125 https://doi.org/10.1016/j.hcc.2023.100125	Jo
Meng Wang and Ping Yang and Yahao Zhang	Au
o Image reconstruction, o Signal processing o Capsule networks o embedded with prior known support information	Keywords

CapsN	EEG	Emotion	2023-13
EEG emotion recognition based on the attention mechanism and pre-trained convolution capsule network			Ti
Knowledge-Based Systems, 265(2023)110372 https://doi.org/10.1016/j.knosys.2023.110372			Jo
Shuaiqi Liu and Zeyao Wang and Yanling An and Jie Zhao and Yingying Zhao and Yu-Dong Zhang			Au

o emotion recognition
o EEG
o Capsule network,
  o Attention mechanism
  o Pre-trained network
			Keywords

CapsN	Agriculture Sustainable	Citrus disease detection	2023-14
Duck optimization with enhanced capsule network based citrus disease detection for sustainable crop management			Ti
Sustainable Energy Technologies and Assessments, 58(2023)103355 https://doi.org/10.1016/j.seta.2023.103355			Jo
A. Arthi and N. Sharmili and Sara A. Althubiti and E. Laxmi Lydia} and Meshal Alharbi and Ahmed Alkhayyat and Deepak Gupta			Au
o Sustainable agriculture, Citrus diseases, Crop management o Intelligent systems, Duck optimization, o Deep learning, o Enhanced capsule network			Keywords

CapsN			2023-15
Extraction of impervious surface with Landsat based on machine learning in Chengdu urban, China			Ti
Remote Sensing Applications: Society and Environment, 30(2023)100974 https://doi.org/10.1016/j.rsase.2023.100974			Jo
Zezhong Zheng and Boya Yang and ShijieLiu and Jun Xia and Xiang Zhang			Au
o Urban impervious surface, NB, o SVM, RF, o CNN, CapsNet			Keywords

CapsN	Emotion recognition	EEG	2023-16
A novel caps-EEGNet combined with channel selection for EEG-based emotion recognition			Ti
Biomedical Signal Processing and Control, 86(2023) 105312 https://doi.org/10.1016/j.bspc.2023.105312			Jo
Kun Chen and Huchuan Jing and Quan Liu and Qingsong Ai and Li Ma\			Au
o Emotion recognition, o Electroencephalography, o Channel selection, Feature extraction, o Deep learning			Keywords

CapsN	Lung disease	Chests X-ray images	2023-17
Lung disease detection using Self-Attention Generative Adversarial Capsule network optimized with sun flower Optimization Algorithm			Ti
Biomedical Signal Processing and Control, 79(2023)104241 https://doi.org/10.1016/j.bspc.2022.104241			Jo
N.B. Mahesh Kumar and K. Premalatha and S. Suvitha			Au
o Chests X-ray images, o Lung disease detection, Contrast limited adaptive histogram equalization filtering scheme, Empirical wavelet transform, Self-Attention Generative Adversarial Capsule Network, ✓ Sun flower Optimization Algorithm			Keywords

CapsN	Emotion recognition,	EEG	2023-18
TC-Net: A Transformer Capsule Network for EEG-based emotion recognition			Ti
Computers in Biology and Medicine, 152(2023) 106463 https://doi.org/10.1016/j.compbiomed.2022.106463			Jo
Yi Wei and Yu Liu and Chang Li and Juan Cheng and Rencheng Song and Xun Chen			Au
o Electroencephalogram (EEG), o Emotion recognition, o Transformer, o Capsule network			Keywords

CapsN	Fault Location	Power distribution grid	2023-19
Deep learning-based fault location framework in power distribution grids employing convolutional neural network based on capsule network			Ti
Electric Power Systems Research, 223(2023)109529 https://doi.org/10.1016/j.epsr.2023.109529			Jo
Hamid Mirshekali and Ahmad Keshavarz and Rahman Dashti and Sahar Hafezi and Hamid Reza Shaker			Au
o Deep machine learning CNN			Keywords

Capsule network	

CapsN	Cirrhosis liver	Classification	2023-20
An efficient classification of cirrhosis liver disease using hybrid convolutional neural network-capsule network			Ti
Biomedical Signal Processing and Control, 80(2023)104152 https://doi.org/10.1016/j.bspc.2022.104152			Jo
H. Shaheen and K. Ravikumar and N. Lakshmipathi Anantha and A. Uma Shankar Kumar and N. Jayapandian and S. Kirubakaran			Au
o Liver cirrhosis, Imaging modalities, o Deep learning, Adaptive o emperor penguin optimization o hybrid o CNN + -capsule net +			Keywords

CapsN	Object recognition	Perturbed	2023-21
ML-CapsNet meets VB-DI-D: A novel distortion-tolerant baseline for perturbed object recognition			Ti
Engineering Applications of Artificial Intelligence, 120(2023)105937 https://doi.org/10.1016/j.engappai.2023.105937			Jo
Zhongqi Lin and Zengwei Zheng and Jingdun Jia and Wanlin Gao and Feng Huang			Au
o Feature matching, o Distorted object detection, o Capsule network (CapsNet), o Distribution of capsule vectors			Keywords

CapsN			2023-22
Multi-focus image fusion using structure-guided flow			Ti
Image and Vision Computing, 138(2023)104814 https://doi.org/10.1016/j.imavis.2023.104814			Jo
Zhao Duan and Xiaoliu Luo and Taiping Zhang			Au
o Structure information, o Multi-focus image fusion, o Capsule network, o Flow alignment module			Keywords

CapsN	Lower limb activity recognition	sEMG	2023-23
An end-to-end lower limb activity recognition framework based on sEMG data augmentation and enhanced CapsNet			Ti
Expert Systems with Applications, 227(2023)120257 https://doi.org/10.1016/j.eswa.2023.120257			Jo
Changhe Zhang and Yangan Li and Zidong Yu and Xiaolin Huang and Jiang Xu and Chao Deng			Au

o Lower limb activity recognition, Biomedical signal analysis, o sEMG denoising, o Class-imbalanced problem, o Capsule network	Keywords

CapsN	Skin cancer	Classification	2023-24
Classification of skin cancer using adjustable and fully convolutional capsule layers			Ti
Biomedical Signal Processing and Control, 85(2023)104949 https://doi.org/10.1016/j.bspc.2023.104949			Jo
EvginGoceri			Au
o Skin cancers Classification o Convolutional network o Capsule network,			Keywords

CapsN	DNA-binding proteins	Predicting	2023-25
BiCaps-DBP: Predicting DNA-binding proteins from protein sequences using Bi-LSTM and a 1D-capsule network			Ti
Computers in Biology and Medicine, 163(2023) 107241 https://doi.org/10.1016/j.compbiomed.2023.107241			Jo
Muhammad K.N. Mursalim and Tati L.E.R. Mengko and RukmanHertadi and Ayu Purwarianti and Meredita Susanty			Au
o DNA-Binding proteins, o One-shot encoding o Bi-LSTM, Capsule network,			Keywords

CapsN	o Human non-histone proteins o Lysine crotonylation sites	Prediction	2023-26
CapsNh-Kcr: Capsule network-based prediction of lysine crotonylation sites in human non-histone proteins			Ti
Computational and Structural Biotechnology Journal, 21(2023)120-127 https://doi.org/10.1016/j.csbj.2022.11.056			Jo
Jhabindra Khanal and Jeevan Kandel and Hilal Tayara and Kil To Chong			Au
Lysine crotonylation (Kcr), Motifs, Web-server Deep learning, ▪ Capsule network			Keywords

CapsN	Cyberbullying	Detection	2023-27
FACapsnet: A fusion capsule network with congruent attention for cyberbullying detection			Ti
Neurocomputing, 542(2023)126253 https://doi.org/10.1016/j.neucom.2023.126253			Jo

Fan Wu and Bin Gao and Xiaoou Pan and Zelong Su and Yu Ji and Shutian Liu and Zhengjun Liu	Au
o Cyberbullying detection, o Capsule network, Similarity weighting, Congruent attention, Dynamic routing	Keywords

CapsN	Electroencephalography		2023-28
Distilling EEG representations via capsules for affective computing			Ti
Pattern Recognition Letters, 171(2023)99-105 https://doi.org/10.1016/j.patrec.2023.05.011			Jo
Guangyi Zhang and Ali Etemad			Au
o Electroencephalography, o Model compression, o Deep learning o Capsule network			Keywords

CapsN	Computer vision	Pedestrian detection	2023-29
Multimodal pedestrian detection using metaheuristics with deep convolutional neural network in crowded scenes			Ti
Information Fusion, 95(2023)401-414 https://doi.org/10.1016/j.inffus.2023.02.014			Jo
Deepak Kumar Jain and Xudong Zhao and Germán González-Almagro and Chenquan Gan and Ketan Kotecha			Au
o Pedestrian detection, o Computer vision, Crowded scenes, o Multi-modal, Deep learning, Hyperparameter tuning			Keywords

CapsN			2023-30
Prediction of drilling fluid lost-circulation zone based on deep learning			Ti
Energy, 276(2023)127495 https://doi.org/10.1016/j.energy.2023.127495			Jo
Yili Kang and Chenglin Ma and Chengyuan Xu and Lijun You and Zhenjiang You			Au
o Lost circulation, Lost-circulation zone prediction, o Deep learning, o BP neural network, CNN, Capsule network			Keywords

CapsN	X-ray Images	Classification	2023-31
Vision Transformer Outperforms Deep Convolutional Neural Network-based Model in			Ti

Classifying X-ray Images	
Procedia Computer Science, 218(2023)2338-2349 https://doi.org/10.1016/j.procs.2023.01.209	Jo
Om Uparkar and Jyoti Bharti and R.K. Pateriya and Rajeev Kumar Gupta and Ashutosh Sharma	Au
o X-ray Image o Vision Transformer, Visual Geometric Group, o Convolutional Neural Network, Capsule Network	Keywords

CapsN	o Pneumonia o COVID-19	CT scans	2023-32
Classification of COVID-19 from community-acquired pneumonia: Boosting the performance with capsule network and maximum intensity projection image of CT scans			Ti
Computers in Biology and Medicine, 154(2023)106567 https://doi.org/10.1016/j.compbiomed.2023.106567			Jo
Yanan Wu and Qianqian Qi and Shouliang Qi and Liming Yang and Hanlin Wang and Hui Yu and Jianpeng Li and Gang Wang and Ping Zhang and Zhenyu Liang and Rongchang Chen			Au
o Community-acquired pneumonia, COVID-19 o Computed tomography, Maximum intensity projection o Capsule network,			Keywords

CapsN	Generalized Anxiety Disorder	EEG	2023-33
Analysis of Altered Brain Dynamics During Episodic Recall and Detection of Generalized Anxiety Disorder			Ti
Neuroscience, 524(2023)37-51 https://doi.org/10.1016/j.neuroscience.2023.01.021			Jo
Dixin Wang and Wanhui Wen and Xuan Zhang and Hongtong Wu and Chang Lei and Jinlong Chao and Jitao Zhong and Hong Peng and Bin Hu			Au
o Generalized anxiety disorder(GAD), o EEG o Capsule network o Microstate, source localization			Keywords

CapsN	Cardiovascular diseases (CVDs)	ECG	2023-34
Automatic diagnosis of cardiovascular diseases using wavelet feature extraction and convolutional capsule network			Ti
Biomedical Signal Processing and Control, 81(2023)104497 ttps://doi.org/10.1016/j.bspc.2022.104497			Jo
Imane El Boujnouni} and Badr Harouchi and Abdelhak Tali and Said Rachafi and Yassin Laaziz			Au
o Cardiovascular diseases o Electrocardiogram, o Wavelet transform, Capsule network, o Focal loss			Keywords

CapsN	Lung cancer	Classification	CT image	2023-35

An ensemble method for the detection and classification of lung cancer using Computed Tomography images utilizing a capsule network with Visual Geometry Group	Ti
Biomedical Signal Processing and Control, 85(2023)104930 https://doi.org/10.1016/j.bspc.2023.104930	Jo
A.R. Bushara and R.S. Vinod Kumar} and S.S. Kumar	Au

• Computed Tomography,
• Deep learning
  ○ CNN
  ○ Capsule network
	Keywords

CapsN	Fire recognition,		2023-36
Multi-layer capsule network with joint dynamic routing for fire recognition			Ti
Image and Vision Computing, 139(2023)104825 https://doi.org/10.1016/j.imavis.2023.104825			Jo
Yuming Wu and Lihui Cen and Shichao Kan and Yongfang Xie			Au
• Two-step training strategy • Multi-layer capsule network, ○ Joint dynamic routing algorithm			Keywords

CapsN	Facial expression	Recognition	2023-37
Ventral-Dorsal Attention Capsule Network for facial expression recognition			Ti
Digital Signal Processing, 136(2023)103978 https://doi.org/10.1016/j.dsp.2023.103978			Jo
Zhizhe Qian and Jing Mu and Feng Tian			Au
• Facial expression recognition, • CapsNet ○ Ventral-Dorsal attention			Keywords

CapsN	Chest CT scans	COVID-19 diagnosis	2023-38
ACSN: Attention capsule sampling network for diagnosing COVID-19 based on chest CT scans			Ti
Computers in Biology and Medicine, 153(2023)106338 https://doi.org/10.1016/j.compbiomed.2022.106338			Jo
Cuihong Wen and Shaowu Liu and Shuai Liu and Ali Asghar Heidari and Mohammad Hijji and Carmen Zarco and Khan Muhammad			Au

• COVID-19 recognition, Lung infections,
• Chest CT scan
•
• Feature sampling
• Capsule network,
  + Deep learning,
  +
			Keywords

CapsN	Cybersecurity	Classification	2023-39
MWCapsNet: A novel Multi-level Wavelet Capsule Network for insider threat detection using image representations			Ti
Neurocomputing, 553(2023)126588 https://doi.org/10.1016/j.neucom.2023.126588			Jo
Krunal Dhanraj Randive and Mohan Ramasundaram			Au
• Insider threat, Image representations, • Multi-level wavelet decomposition, • Capsule network,			Keywords

CapsN	Cognitive recognition	EEG	2023-40
A bidirectional interaction-based hybrid network architecture for EEG cognitive recognition			Ti
Computer Methods and Programs in Biomedicine, 238(2023)107593 https://doi.org/10.1016/j.cmpb.2023.107593			Jo
Yue Zhao and Hong Zeng and Haohao Zheng and Jing Wu and Wanzeng Kong and Guojun Dai			Au
• Hybrid network, , Cognitive networks, Computing networks, ▪ Knowledge distillation • Bidirectional interaction			Keywords

CapsN	Superficial velocity prediction		2023-41
Soft measurement of oil–water two-phase flow using a multi-task sequence-based CapsNet			Ti
ISA Transactions, 137(2023)629-645 https://doi.org/10.1016/j.isatra.2022.12.007			Jo
Lei OuYang and Ningde Jin and Landi Bai and Weikai Ren			Au
• Oil–water flow, Soft measurement, • Capsule network, • Multi-task learning			Keywords

CapsN	Object detection		2023-42
DR-CapsNet with CAEMRA: Looking deep inside instance for boosting object detection effect			Ti
Engineering Applications of Artificial Intelligence, 123(2023)106218 https://doi.org/10.1016/j.engappai.2023.106218			Jo
Zhongqi Lin and Zengwei Zheng and Jingdun Jia and Wanlin Gao and Feng Huang			Au
• Part-whole correlation, • Capsule Network (CapsNet), o Routing agreement			Keywords

CapsN	Pipeline leakage	Diagnosis	2023-43

Corrosion leakage risk diagnosis of oil and gas pipelines based on semi-supervised domain generalization model	Ti
Reliability Engineering & System Safety, 238(2023)109486 https://doi.org/10.1016/j.ress.2023.109486	Jo
Xingyuan Miao and Hong Zhao and Boxuan Gao and Fulin Song	Au
o Potential leakage risk, o Semi-supervised domain generalization, Laser optical sensing, o Generative adversarial network, o Capsule network	Keywords

CapsTensNet Capsule neural tensor networks			2023-44
Capsule neural tensor networks with multi-aspect information for Few-shot Knowledge Graph Completion			Ti
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Qianyu Li and Jiale Yao and Xiaoli Tang and Han Yu and Siyu Jiang and Haizhi Yang and Hengjie Song			Au
o Few-shot knowledge graph completion, o Few-shot learning, Knowledge graph, o Capsule network, o Neural tensor network			Keywords

CapsN	Machine translation		2023-45
Incorporating history and future into non-autoregressive machine translation			Ti
Computer Speech & Language, 77(2023)101439 https://doi.org/10.1016/j.csl.2022.101439			Jo
Shuheng Wang and Heyan Huang and Shumin Shi			Au
o History and future information Machine translation, o Non-autoregressive, o Capsule network			Keywords

CapsN	Object detection		2023-46
IOP-CapsNet with ISEMRA: Fetching part-to-whole topology for improving detection performance of articulated instances			Ti
Expert Systems with Applications, 226(2023)120247 https://doi.org/10.1016/j.eswa.2023.120247			Jo
Zhongqi Lin and Yuan Wang and Zengwei Zheng and Jingdun Jia and Wanlin Gao			Au
Capsule Network (CapsNet), Part-whole correlation, Routing agreement			Keywords

CapsN	3D human pose estimation		2023-47
CapsulePose: A variational CapsNet for real-time end-to-end 3D human pose estimation			Ti

Neurocomputing, 523(2023) 81-91 https://doi.org/10.1016/j.neucom.2022.11.097	Jo
Nicola Garau and Nicola Conci	Au
o Capsule networks, o Viewpoint-equivariance, o Deep learning, o Real-time	Keywords

CapsN	Graph classification		2023-48
Exploring graph capsule network and graphormer for graph classification			Ti
Information Sciences, 640(2023)119045 https://doi.org/10.1016/j.ins.2023.119045			Jo
Xianglin Zuo and Hao Yuan and Bo Yang and Hongji Wang and Ying Wang			Au
o Graph neural network, o Transformer, o Capsule network o Attention mechanism, o Dynamic routing			Keywords

CapsN	Health monitoring		2023-49
Multiple domain dynamic feature adaption transfer learning method for stranded wires health monitoring under variable vibration working conditions using laser-generated ultrasonic guided wave			Ti
Engineering Structures, 297(2023)117013 https://doi.org/10.1016/j.engstruct.2023.117013			Jo
Dingmin Yang and Bin Zhang and Ruimou Cai and Xiaobin Hong			Au
o Ultrasonic guided wave, o Stranded wires, o Transfer learning, o Domain adaption			Keywords

CapsN	Recommendation system		2023-50
Self-supervised Dual Hypergraph learning with Intent Disentanglement for session-based recommendation			Ti
Knowledge-Based Systems, 270(2023)110528 https://doi.org/10.1016/j.knosys.2023.110528			Jo
Rong Gao and Yuhe Tao and Yonghong Yu and Jia Wu and Xiongkai Shao and Jing Li and Zhiwei Ye			Au
o Self-supervised learning, o Hypergraph convolutional network, o Capsule network, o Self-attention mechanism, o Deep learning			Keywords

CapsN	Pattern parser		2023-51
CtFPPN: A coarse-to-fine pattern parser for dealing with distribution imbalance of pixels			Ti
Knowledge-Based Systems, 280(2023)111062 https://doi.org/10.1016/j.knosys.2023.111062			Jo
Zhongqi Lin and Yuan Wang and Zengwei Zheng			Au
o Pattern parsing, o Unbalanced pixel distribution, o Multi-head attention mechanism, o Capsule network, o Expectation-maximum routing agreement			Keywords

CapsN	Medical	Diagnosis	2023-52
BP-CapsNet: An image-based Deep Learning method for medical diagnosis			Ti
Applied Soft Computing, 146(2023)110683 https://doi.org/10.1016/j.asoc.2023.110683			Jo
Yongjia Lei and Zujian Wu and Zhiying Li and Yuer Yang and Zhongming Liang			Au
o Capsule Network, o Singular Value Decomposition, o Bayes–Pearson Routing			Keywords

Computational News New – 63a

CapsNN (CAPSule Neural Net)

Is (Intelligent System)

me (with Method(s)evolution)

I(T)O

I(nput) → O(utput)

TransFormed (Tf) to

Tf(I) → O

Tf: [.....

[NN; ConvNN; CapsN,
GeneExpression, Consciousness]
[Tranformer; Attention]
Methods: [Stat; Math]
[Identity, Not; exp, sin , tanh, inv;
Algebraic, Boolean, fuzzy]
Transforms: [Hadamard, Fourier]

]