|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Papcí ľiťlc** | **Mcťkod** | **Mcíiťs** | **Kcmcíiťs** | **Papcí Ḻi⭲k** |
| Pícdicťi⭲g ťkc c⭲cígQ o"ťp"ť or wi⭲d ť"íbi⭲c bascd o⭲ wcaťkcí co⭲diťio⭲ | Pícdicťcd ťkc o"ťp"ť powcí or ťkc wi⭲d ť"íbi⭲cs "si⭲g ťkc ía⭲dom roícsť ícgícssoí algoíiťkm. ľkc wi⭲d diíccťio⭲, wi⭲d spccd a⭲d o"ťdooí ťcmpcíať"íc aíc "scd as i⭲p"ť paíamcťcís ťo pícdicť  o"ťp"ť powcí | Ḻow o:cí-riťťi⭲g ťc⭲dc⭲cQ Simplc a⭲d rasť ťo ťíai⭲  Ḻow pícdicťio⭲ cííoí | Píoblcm or missi⭲g daťa is  ⭲oť sol:cd  Pícdicťio⭲ modcl docs ⭲oť pícdicť oťkcí paíamcťcís likc  ra"lť i⭲ wi⭲d ť"íbi⭲c | [kťťps://icccxploíc.iccc.oíg/](https://ieeexplore.ieee.org/)sťamp/sťa mp.jsp?ťp=&aí⭲"mbcí=920®®52&ťag= 1 |
| Skoíť ťcím wi⭲d spccd roíccasťi⭲g roí wi⭲d ť"íbi⭲c applicaťio⭲s "si⭲g li⭲caí pícdicťio⭲ mcťkod | Utilizes the ‘lineaí píediction’ method in conjunction with ‘filteíing’ of the wind spccd wa:croím. ľkc rilťcíi⭲g climi⭲aťcs ťkc "⭲dcsiícd paíťs or ťkc rícq"c⭲cQ spccťí"m (i.c. smooťki⭲g) or ťkc mcas"ícd wi⭲d spccd wkick is lcss crrccťi:c i⭲ a⭲ applicaťio⭲ | Iiťs a li⭲caí dirrcíc⭲ťial cq"aťio⭲ ťo ťkc daťa wa:croím  Pcíroíms a⭲ acc"íaťc modclli⭲g  kigk coííclaťio⭲ bcťwcc⭲ ťkc o"ťp"ť or ťkc mcťkod a⭲d ťkc ícal wi⭲d spccd  daťa | I⭲cícasi⭲g ťkc modcl oídcí ca⭲ ca"sc i⭲sťabiliťQ or obťai⭲cd modcl  Iilťcíi⭲g o"ť ťkc lcss crrccťi:c rícq"c⭲cQ compo⭲c⭲ťs ríom ťkc wi⭲d spccd spccťí"m is ⭲oť do⭲c | kťťps://ícadcí.clsc:icí.com/ícadcí/sd/ pii/S096014®1070002«7?ťokc⭲=E2®5 B«E00««2AK147BKIIE®E0BAK«0E5B 0E®K®60E1I2BB®1KA2®70A®9B4®®B  9E7I6A7164501C2®94664C042B9«CE  76«K&oíigi⭲Rcgio⭲=c"-wcsť-1&oíigi⭲Cícaťio⭲=202209101®«9«4 |
| Wi⭲d powcí roíccasťi⭲g or a⭲ orrskoíc wi⭲d ť"íbi⭲c bascd o⭲ kigk rícq"c⭲cQ SCAKA daťa a⭲d dccp lcaí⭲i⭲g ⭲c"íal  ⭲cťwoík | A dccp lcaí⭲i⭲g ⭲c"íal ⭲cťwoík was co⭲sťí"cťcd ťo pícdicť wi⭲d powcí bascd o⭲ a :cíQ kigk-rícq"c⭲cQ SCAKA daťabasc. I⭲p"ť rcať"ícs wcíc  c⭲gi⭲ccícd bascd o⭲ ťkc pkQsical píoccss or orrskoíc wi⭲d ť"íbi⭲cs, wkilc ťkcií li⭲caí a⭲d ⭲o⭲-li⭲caí  coííclaťio⭲s wcíc r"íťkcí i⭲:csťigaťcd | Investigated non-linear correlations  Píoposcd appíoack ca⭲ ícd"cc ťkc comp"ťaťio⭲al cosť  Rcťai⭲s kigk acc"íacQ | Learning rate is high  Requires very large amount of data in order to perform better | https://reader.elsevier.com/reader/sd  /pii/S0360544220308008?token=2C18 8EDEC70600F84640AAFD559E3E6B4A  953B312803DDAC762A953E86506642  189F88C4FB1FC4E10ACABBB34C870F  2C&originRegion=eu-west-1&originCreation=20220910184930 |
| Wi⭲d ť"íbi⭲c powcí o"ťp"ť pícdicťio⭲ modcl dcsig⭲ bascd o⭲ aíťiricial ⭲c"íal  ⭲cťwoíks a⭲d climaťic spaťioťcmpoíal daťa | B"ildi⭲g a pícdicťio⭲ modcl "si⭲g ťkc Aíťiricial Nc"íal Ncťwoíks, acťi:aťio⭲ r"⭲cťio⭲, a⭲alQzc modcl pcíroíma⭲cc roí dirrcíc⭲ť siťcs, compaíiso⭲ o⭲ dirrcíc⭲ť  climaťic co⭲diťio⭲s | Modcl pcíroíma⭲cc is compaícd acíoss :aíio"s siťcd ťo impío:c acc"íacQ  Iť ca⭲ ka⭲dlc laígc amo"⭲ť or daťa scťs | Doesn’t take additional climatic variables like atmospheric pressure  Data is not unified | https://ieeexplore.ieee.org/document  /8352329?denied= |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Wi⭲d ľ"íbi⭲c Powcí O"ťp"ť Esťimaťio⭲ wiťk Píobabilisťic Powcí C"í:cs | Deterministic and probabilistic power curve, uses field data, Normal distribution and Weibull distribution are used to represent the probability density function of power output at various wind speed, Monte Carlo simulation is used to generate random predicting power output | Performs better than other deterministic models and probabilistic models  Improves wind turbine power output estimation accuracy | Does not consider every wind turbine in the wind farm  Need to extend model to calculate total wind power output | https://ieeexplore.ieee.org/stamp/sta mp.jsp?tp=&arnumber=9209346 |
| A Review of Wind Power Forecasting Models | Wind power forecasting models for wind prediction, physical approaches, statistical approaches, adaptive fuzzy neural networks, on-line adaptation capabilities for optimal performance | presents a detailed review on existing tools used in wind speed  wind power prediction over time-scales | Difficult to evaluate the performance of various models  No forecasting model can perfect any condition | https://[www.sciencedirect.com/scienc](http://www.sciencedirect.com/scienc) e/article/pii/S1876610211019291 |
| Wi⭲d Powcí Ioíccasťs Usi⭲g Ga"ssia⭲ Píoccsscs a⭲d N"mcíical Wcaťkcí Pícdicťio⭲ | Combination of numeric and probabilistic models: a Gaussian process (GP) combined with a numerical weather prediction (NWP) model, validated with three real-world datasets for model training and testing | Three real-world datasets were used for model training and testing  The proposed model has improvement of accuracy for the regular large datasets | Model can not handle sparse dataset | https://ieeexplore.ieee.org/stamp/sta mp.jsp?tp=&arnumber=6617679 |
| Wi⭲d ť"íbi⭲c powcí o"ťp"ť pícdicťio⭲ "si⭲g a ⭲cw kQbíid  ⭲c"ío-c:ol"ťio⭲aíQ mcťkod | K means clustering, SCADA time series decomposed by Hybrid Variational Mode Decomposition, which consists of VMD, GNM and ARLS heurisics, SaDE with sine cosine optimization hyper parameter tuning, LSTM | Model provides accurate forecasting  Lowers computational runtime | Different results were achieved over iteration | https[://www.s](http://www.sciencedirect.com/science)ci[en](http://www.sciencedirect.com/science)c[edirect.com/science](http://www.sciencedirect.com/science)  /article/abs/pii/S0360544221008665 |