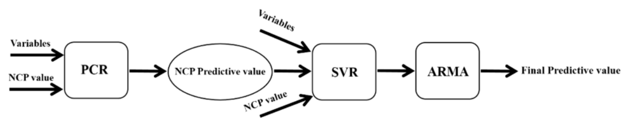
S. No	Method	Description	Research Paper links
1	Dynamic Neural Networks(namely two : NARX and TDNN) approach to predict the concentration of air pollutants(like NO2, O3, RH and T)	This employs multivariate calibration techniques including the use of Dynamic and non-linear supervised machine learning tools (Performance advantage : improves as the target concentration is rapidly changing)	DNN
2	LUR(land use regression) models based on data which is collected from mobile samplers(PM2.5)	Data is collected using multiple units of smartphone-based particle counter which repeatedly samples a fixed route Then various ML algorithms(linear regression, random forest, stacked ensemble) are used and several pollution hotspots are also identified	ML in Seoul
3	MOx(Metal Oxide type Semiconductor gas) Sensors employing semiconductor science to measure CO concentration	When the species bind to the surface of the sensor it results in in outflow or inflow of free electrical charge and this change in the electrical conductivity is used to find the concentration value	Semiconductor gas sensor

4	QoS enabled IoT based sensors with power consumption Optimization used to measure PM2.5, PM10, CO, T and RH	QoS : Quality of Service, 3 Levels to justify data delivery(to the remote cloud) accuracy of the system IoT : layered architecture using HiveMQ(cloud broker) and 5 layers such as Physical sensing, Communication, cloud service and data preprocessing Power Optimization : sensor shifts to sleep mode at appropriate intervals	tested in Vadodara, India
5	Electrolytic Sensors(can measure CO, NO, NO2, etc)	Electrolytic cells(cathode, anode and an auxiliary electrode used for compensating baseline deviations) are used for measuring concentration of various gases.They function by Reacting with target analyte and producing proportional current.	ES
6	Multinomial logistic regression	Dataset Visualization → Data Filtering → Classification algorithm → Prediction → Decision support	
7	Some methods to measure air quality	Photometry, chemiluminescence, etc	https://www.intechopen.com/chapters/11382

8	Bayesian Method	AQI calculation method -> Bayesian network model -> Air quality data processing -> Model design of air quality prediction system	https://iopscience.iop.org/article/10.1088/1742-6596/2010/1/012011/pdf
9	Stepwise analysis using correlation		https://www.nature.com/articles/s41598-020-79462-0#:~:text=In%20the%20air%20quality%20prediction%20problem%2C%20PCR%20model%2C%20SVR%20model,the%20concentration%20of%20air%20pollutants.
10	Another Statistical Model	Model performance evaluation was accomplished by computing the most common scores: (i) bias (Equation 1), (ii) mean absolute error (MAE) (Equation 2), (iii) root mean square error (RMSE) (Equation 3), (iv) coefficient of determination (R^2) (Equation 4), and (v) relative mean absolute error (RMAE)	https://www.frontiersin.org/articles/10.3389/fdata.2022.826517/full
11	Low-Cost Air Quality Sensor Evaluation and Calibration in Contrasting Aerosol Environments	Suggested performing pre-deployment calibrations developed at local or regional scales for the PA(PurpleAir) sensors to correct the data from the field. Did PM2.5 measurement using Random Forest model to achieve regional calibration model (temperature and relative humidity served as inputs along with sensor PM2.5 readings).	https://amt.copernicus.org/preprints/amt-2022-140/amt-2022-140.pdf

12	Calibrating Networks of Low2 Cost Air Quality Sensors	PM2.5: Focuses on providing a series of transferability metrics that can be applied to other networks and offers suggestions for which calibration method would be most useful for different end goals. Concluded that evaluating calibration models at all co-location sites using overall metrics like RMSE should not be seen as the only/best way to determine how to calibrate a network of LCS. Instead, approaches like LOSO, LOBD, or a combination of these, as demonstrated should be used to evaluate calibration transferability.	https://amt.copernicus.org/preprints/amt-2022-65/amt-2022-65.pdf
13	Optimization and Evaluation of Calibration for Low-cost Air Quality Sensors: Supervised and Unsupervised Machine Learning Models	Compared the output of five separate models for PM2.5 predictions and showed that the ANN model performed best. (also used unsupervised learning)	https://annals-csis.org/Volume_25/drp/pdf/95.pdf
14	feedforward neural network model could be used to calibrate the low-cost PM	This study demonstrated that the two hidden layers of feedforward neural network model could be used to calibrate the low-cost PM sensors. The accuracy of the low-cost PM sensors can be improved with further on-field calibration and validation.	https://www.researchgate.net/publication/330595316_Calibration_of_Low-Cost_Particle_Sensors_by_Using_Machine-Learning_Method

15	Using time of pollution detecting my mobile sensors as a random variable for optimization to measure level of aerosol pollution	Using mobile devices can increase the spatiotemporal resolution of data. Can use UAV(unmanned aerial vehicles), exhaust gas monitoring devices. The cumulative distribution function of air pollution detection time of mobile sensors is used to detect danger zones	link
16	Mounting low cost sensors on UAV to measure PM1, PM2.5 and PM10	Different altitudes are used to measure desired particles Decision tree method is used to determine which PM indicator should be measured and which altitude plays a greater role in optimization of measuring the pollutants	tested in Poland