

---

```
clc, clear, close all;
addpath(fullfile(pwd, 'packages/WFDB'));
addpath(fullfile(pwd, 'functions'));
savepath;
[plt] = plots();
[LTAf] = load_data();
```

## ALGORITHM

This .m file loads a single piece of data with its annotations, and runs the whole algorithm proposed by the paper and provides visualizations. We can use either "atr" or "qrs" annotation as the [annot\\_type](#).

There are some parameters investigated in the results section of the paper, which we will define as below:

alpha: smoothing factor of the exponential average ( $0 < \alpha < 1$ )  
N: size of the sliding window to detect pairwise RR interval differences  
gamma: threshold in seconds for detection of pairwise differences in M  
delta: threshold employed in the signal fusion and detection  
eta: Final decision threshold

Using the parameters below, we can control the algorithm behaviour when running the algorithm, to display a certain information, and whether to only consider a single file (for test purposes) or run the algorithm on the whole dataset:

disp\_annot\_counts: if "true", displays the unique annotations in console  
disp\_plots: if "true", displays various plots for the domain  
disp\_evaluation: if "true", calculates evaluation metrics on the dataset  
test\_single\_file: if "true", only runs the algorithm on a single file  
specified in the "test\_file" variable

*% Hyperparameters of the paper*

```
alpha = 0.02;
N = 8;
gamma = 0.03;
delta = 2e-4;
eta = 0.725;
```

*% Data directory and the annotation type*

```
data_directory = 'data/LTAf/';
annot_type = 'atr';
test_file = 'data/LTAf/00';
data_paths = LTAf.get_data_paths(data_directory, annot_type);
```

*% display settings*

```
test_single_file = false;
disp_annot_counts = true;
disp_plots = true;
disp_evaluation = true;
```

*% evaluation metrics*

```
cols = {'Record', 'Accuracy', 'Precision', 'Sensitivity', 'Specificity'...
        'ECG_time', 'AF_time', 'N_AF_Episodes', 'Runtime'};
evaluation_metrics = array2table(...
```

---

```

        strings(length(data_paths), length(cols)), 'VariableNames', cols);

% start of the algorithm
for i=1:length(data_paths)

    % set the path as "test_file" if we don't want to loop over all files
    if test_single_file
        path = test_file;
    else
        path = data_paths{i};
    end
    disp(repmat('-', 1, 80));
    disp(['File name: ', path]);

    % Get the data and groundtruth AF annotations
    [signal, indices, annots, annots_aux, r, N_channels, N_intervals, fs]
= ...
    LTAF.get_data(path, annot_type, disp_annot_counts);
    [ECG_AF_Groundtruth, RR_AF_Groundtruth, ECG_time, AF_time, N_AF_Episodes]
= ...
    LTAF.get_annots(signal, indices, annots_aux, N_intervals, fs);

    % Main algorithm, computing the runtime within (tic, toc)
    tic;
    rm = median_filter(r);
    rt = forward_backward_averager(r, alpha);
    [M, Mt, It] = irregularity_detector(rm, rt, N_intervals, N, gamma, alpha);
    [B, Bt] = bigeminy_supressor(r, rm, N_intervals, N, alpha);
    [O, RR_AF_Predictions] = signal_fusion(It, Bt, delta, eta);
    runtime = toc;

    % display the according plots
    if disp_plots

        % Plotting the signal channels and RR intervals
        plt.plot_whole_signal(signal, ECG_AF_Groundtruth, N_channels)
        plt.plot_signal_channels(signal, indices, N_channels, N_intervals, fs)
        plt.plot_rr_intervals(r, annots_aux)

        % 3-Point Median Filtering
        plt.plot_median_filtering(r, rm)

        % Forward-Backward Exponential Averaging
        plt.plot_exponential_averager(r, rt)

        % RR Irregularity Detection
        plt.plot_irregularity_detector(M, Mt, It)

        % Bigeminy Supression
        plt.plot_bigeminy_supressor(B, Bt, N_intervals, delta)

        % Signal Fusion and Detection
        plt.plot_signal_fusion(O, annots_aux, N_intervals, RR_AF_Predictions,
RR_AF_Groundtruth, eta)

```

---

---

```

        plt.plot_final_results(signal, ECG_AF_Groundtruth, indices,
RR_AF_Predictions)

    end

    % computing confusion matrix and extracting values
    % confMat = confusionmat(RR_AF_Groundtruth, RR_AF_Predictions);
    TN = sum(~RR_AF_Groundtruth & ~RR_AF_Predictions);
    FP = sum(~RR_AF_Groundtruth & RR_AF_Predictions);
    FN = sum(RR_AF_Groundtruth & ~RR_AF_Predictions);
    TP = sum(RR_AF_Groundtruth & RR_AF_Predictions);

    % evaluation metrics
    evaluation_metrics.Record{i} = path;
    evaluation_metrics.Accuracy{i} = num2str((TP + TN) / N_intervals);
    evaluation_metrics.Precision{i} = num2str(TP / (TP + FP));
    evaluation_metrics.Sensitivity{i} = num2str(TP / (TP + FN));
    evaluation_metrics.Specificity{i} = num2str(TN / (TN + FP));
    evaluation_metrics.ECG_time{i} = ECG_time;
    evaluation_metrics.AF_time{i} = AF_time;
    evaluation_metrics.N_AF_Episodes{i} = num2str(N_AF_Episodes);
    evaluation_metrics.Runtime{i} = num2str(runtime);

    % display the performance evaluations
    if disp_evaluation
        disp('Evaluation Metrics:');
        disp(['    Record: ', evaluation_metrics.Record{i}]);
        disp(['    Accuracy: ', evaluation_metrics.Accuracy{i}]);
        disp(['    Precision: ', evaluation_metrics.Precision{i}]);
        disp(['    Sensitivity: ', evaluation_metrics.Sensitivity{i}]);
        disp(['    Specificity: ', evaluation_metrics.Specificity{i}]);
        disp(['    ECG_time: ', evaluation_metrics.ECG_time{i}]);
        disp(['    AF_time: ', evaluation_metrics.AF_time{i}]);
        disp(['    N_AF_Episodes: ', evaluation_metrics.N_AF_Episodes{i}]);
        disp(['    Runtime: ', evaluation_metrics.Runtime{i}]);
    end

    if test_single_file
        % No need to loop for other files
        break;
    else
        % close figures to prevent RAM crash
        close all;
    end

end

% Write the table to the CSV file
writetable(evaluation_metrics, 'other/evaluations.csv');
if disp_evaluation
    disp(repmat('-', 1, 80));
    cols_to_disp =
    {'Record', 'Sensitivity', 'Specificity', 'ECG_time', 'AF_time'};
    disp(evaluation_metrics(:, cols_to_disp));

```

---

---

end

---

File name: data/LTAF/00

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 44  
Annotation "(N" Count: 5  
Annotation "(VT" Count: 40

Evaluation Metrics:

Record: data/LTAF/00  
Accuracy: 0.99468  
Precision: 0.99234  
Sensitivity: 0.98142  
Specificity: 0.99806  
ECG\_time: 20:58:00  
AF\_time: 02:14:54  
N\_AF\_Episodes: 44  
Runtime: 0.26375

---

File name: data/LTAF/01

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 293  
Annotation "(AFIB" Count: 53  
Annotation "(B" Count: 16  
Annotation "(N" Count: 457  
Annotation "(SBR" Count: 83  
Annotation "(SVTA" Count: 25  
Annotation "(T" Count: 6  
Annotation "MISSB" Count: 1  
Annotation "PSE" Count: 28

Evaluation Metrics:

Record: data/LTAF/01  
Accuracy: 0.80145  
Precision: 0.81799  
Sensitivity: 0.96631  
Specificity: 0.14876  
ECG\_time: 20:34:00  
AF\_time: 16:13:06  
N\_AF\_Episodes: 53  
Runtime: 0.22406

---

File name: data/LTAF/03

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 34  
Annotation "(AFIB" Count: 22  
Annotation "(B" Count: 2  
Annotation "(N" Count: 1648  
Annotation "(SBR" Count: 1587  
Annotation "(SVTA" Count: 11  
Annotation "(T" Count: 1  
Annotation "(VT" Count: 2

---

Annotation "MISSB" Count: 1  
Evaluation Metrics:  
Record: data/LTAF/03  
Accuracy: 0.97542  
Precision: 0.78365  
Sensitivity: 0.98214  
Specificity: 0.9748  
ECG\_time: 24:16:00  
AF\_time: 01:20:03  
N\_AF\_Episodes: 22  
Runtime: 0.23171

-----  
File name: data/LTAF/05  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 8  
Annotation "(AFIB" Count: 3  
Annotation "(N" Count: 14  
Annotation "(SVTA" Count: 2  
Annotation "MISSB" Count: 6  
Evaluation Metrics:  
Record: data/LTAF/05  
Accuracy: 0.99834  
Precision: 0  
Sensitivity: 0  
Specificity: 0.99897  
ECG\_time: 24:19:00  
AF\_time: 00:00:40  
N\_AF\_Episodes: 3  
Runtime: 0.27868

-----  
File name: data/LTAF/06  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 11  
Annotation "(AFIB" Count: 19  
Annotation "(N" Count: 48  
Annotation "(SBR" Count: 1  
Annotation "(SVTA" Count: 16  
Annotation "MISSB" Count: 180  
Evaluation Metrics:  
Record: data/LTAF/06  
Accuracy: 0.99608  
Precision: 0.94617  
Sensitivity: 0.97838  
Specificity: 0.99703  
ECG\_time: 25:15:00  
AF\_time: 00:45:04  
N\_AF\_Episodes: 19  
Runtime: 0.29543

-----  
File name: data/LTAF/07  
Unique Annotations:  
Annotation " Aux" Count: 1

---

Annotation "(AB" Count: 51  
Annotation "(AFIB" Count: 8  
Annotation "(B" Count: 416  
Annotation "(N" Count: 499  
Annotation "(SVTA" Count: 28  
Annotation "(T" Count: 1  
Annotation "MISSB" Count: 1  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/07  
Accuracy: 0.9613  
Precision: 0.82455  
Sensitivity: 0.96897  
Specificity: 0.9598  
ECG\_time: 25:32:00  
AF\_time: 03:24:47  
N\_AF\_Episodes: 8  
Runtime: 0.26271

-----  
File name: data/LTAF/08

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 4  
Annotation "(B" Count: 1  
Annotation "(N" Count: 20  
Annotation "(SVTA" Count: 13

Evaluation Metrics:

Record: data/LTAF/08  
Accuracy: 0.99852  
Precision: 1  
Sensitivity: 0.36759  
Specificity: 1  
ECG\_time: 25:45:00  
AF\_time: 00:01:38  
N\_AF\_Episodes: 4  
Runtime: 0.26612

-----  
File name: data/LTAF/10

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 80  
Annotation "(N" Count: 148  
Annotation "(SVTA" Count: 68

Evaluation Metrics:

Record: data/LTAF/10  
Accuracy: 0.97365  
Precision: 0.99839  
Sensitivity: 0.96726  
Specificity: 0.99483  
ECG\_time: 25:35:00  
AF\_time: 17:07:44  
N\_AF\_Episodes: 80

---

Runtime: 0.29956

-----  
File name: data/LTAF/11

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 2  
Annotation "(VT" Count: 1  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/11  
Accuracy: 0.99925  
Precision: 0.99995  
Sensitivity: 0.9993  
Specificity: 0  
ECG\_time: 26:14:00  
AF\_time: 26:03:09  
N\_AF\_Episodes: 2  
Runtime: 0.25694

-----  
File name: data/LTAF/12

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/12  
Accuracy: 0.99878  
Precision: 1  
Sensitivity: 0.99878  
Specificity: NaN  
ECG\_time: 24:06:00  
AF\_time: 24:05:39  
N\_AF\_Episodes: 1  
Runtime: 0.33577

-----  
File name: data/LTAF/13

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 12  
Annotation "(AFIB" Count: 2  
Annotation "(B" Count: 3  
Annotation "(N" Count: 193  
Annotation "(SBR" Count: 172  
Annotation "(SVTA" Count: 12  
Annotation "(T" Count: 1  
Annotation "PSE" Count: 139

Evaluation Metrics:

Record: data/LTAF/13  
Accuracy: 0.96779  
Precision: 0.99524  
Sensitivity: 0.87879  
Specificity: 0.99855  
ECG\_time: 19:56:00  
AF\_time: 04:56:14  
N\_AF\_Episodes: 2

---

Runtime: 0.18506

-----  
File name: data/LTAF/15

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 801  
Annotation "(N" Count: 4  
Annotation "(SBR" Count: 802  
Annotation "PSE" Count: 305

Evaluation Metrics:

Record: data/LTAF/15  
Accuracy: 0.78562  
Precision: 0.97214  
Sensitivity: 0.79786  
Specificity: 0.53859  
ECG\_time: 24:35:00  
AF\_time: 23:17:57  
N\_AF\_Episodes: 801  
Runtime: 0.21437

-----  
File name: data/LTAF/16

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 39  
Annotation "(AFIB" Count: 37  
Annotation "(B" Count: 7  
Annotation "(N" Count: 117  
Annotation "(SBR" Count: 64  
Annotation "(SVTA" Count: 4  
Annotation "(T" Count: 16

Evaluation Metrics:

Record: data/LTAF/16  
Accuracy: 0.9751  
Precision: 0.37497  
Sensitivity: 0.92674  
Specificity: 0.97585  
ECG\_time: 24:00:00  
AF\_time: 00:19:57  
N\_AF\_Episodes: 37  
Runtime: 0.31344

-----  
File name: data/LTAF/17

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/17  
Accuracy: 0.99981  
Precision: 1  
Sensitivity: 0.99981  
Specificity: NaN  
ECG\_time: 24:56:00  
AF\_time: 24:55:10  
N\_AF\_Episodes: 1



---

Runtime: 0.38317

-----  
File name: data/LTAF/18

Unique Annotations:

Annotation " Aux" Count: 1

Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/18

Accuracy: 1

Precision: 1

Sensitivity: 1

Specificity: NaN

ECG\_time: 25:00:00

AF\_time: 24:59:16

N\_AF\_Episodes: 1

Runtime: 0.40349

-----  
File name: data/LTAF/19

Unique Annotations:

Annotation " Aux" Count: 1

Annotation "(AB" Count: 46

Annotation "(AFIB" Count: 9

Annotation "(N" Count: 83

Annotation "(SBR" Count: 6

Annotation "(SVTA" Count: 21

Evaluation Metrics:

Record: data/LTAF/19

Accuracy: 0.98592

Precision: 0.15082

Sensitivity: 0.44939

Specificity: 0.98838

ECG\_time: 24:00:00

AF\_time: 00:05:03

N\_AF\_Episodes: 9

Runtime: 0.2784

-----  
File name: data/LTAF/20

Unique Annotations:

Annotation " Aux" Count: 1

Annotation "(AFIB" Count: 2

Annotation "(SBR" Count: 1

Evaluation Metrics:

Record: data/LTAF/20

Accuracy: 0.9984

Precision: 0.99996

Sensitivity: 0.99844

Specificity: 0

ECG\_time: 24:19:60

AF\_time: 24:19:09

N\_AF\_Episodes: 2

Runtime: 0.26907

-----  
File name: data/LTAF/21

Unique Annotations:

---

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1  
Annotation "M" Count: 4  
Annotation "PSE" Count: 572

Evaluation Metrics:

Record: data/LTAF/21  
Accuracy: 0.89526  
Precision: 1  
Sensitivity: 0.89526  
Specificity: NaN  
ECG\_time: 21:06:00  
AF\_time: 20:56:25  
N\_AF\_Episodes: 1  
Runtime: 0.23272

-----  
File name: data/LTAF/22

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 188  
Annotation "(AFIB" Count: 102  
Annotation "(B" Count: 996  
Annotation "(N" Count: 1636  
Annotation "(SBR" Count: 107  
Annotation "(SVTA" Count: 36  
Annotation "(T" Count: 282  
Annotation "(VT" Count: 85  
Annotation "MISSB" Count: 16

Evaluation Metrics:

Record: data/LTAF/22  
Accuracy: 0.68974  
Precision: 0.095865  
Sensitivity: 0.98342  
Specificity: 0.6796  
ECG\_time: 25:41:00  
AF\_time: 00:23:58  
N\_AF\_Episodes: 102  
Runtime: 0.35469

-----  
File name: data/LTAF/23

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 801  
Annotation "(AFIB" Count: 57  
Annotation "(B" Count: 172  
Annotation "(N" Count: 1194  
Annotation "(SBR" Count: 122  
Annotation "(SVTA" Count: 184  
Annotation "(T" Count: 6  
Annotation "(VT" Count: 1  
Annotation "MISSB" Count: 1  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/23  
Accuracy: 0.77487

---

Precision: 0.56974  
Sensitivity: 0.99915  
Specificity: 0.67966  
ECG\_time: 25:39:00  
AF\_time: 05:59:42  
N\_AF\_Episodes: 57  
Runtime: 0.24695

-----  
File name: data/LTAF/24

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 16  
Annotation "(AFIB" Count: 2  
Annotation "(N" Count: 784  
Annotation "(SBR" Count: 759  
Annotation "(SVTA" Count: 9  
Annotation "MISSB" Count: 16

Evaluation Metrics:

Record: data/LTAF/24  
Accuracy: 0.98182  
Precision: 0.083506  
Sensitivity: 0.97576  
Specificity: 0.98183  
ECG\_time: 23:58:00  
AF\_time: 00:01:47  
N\_AF\_Episodes: 2  
Runtime: 0.2517

-----  
File name: data/LTAF/25

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 346  
Annotation "(IVR" Count: 133  
Annotation "(VT" Count: 212

Evaluation Metrics:

Record: data/LTAF/25  
Accuracy: 0.98504  
Precision: 0.98504  
Sensitivity: 1  
Specificity: 0  
ECG\_time: 18:20:00  
AF\_time: 18:01:49  
N\_AF\_Episodes: 346  
Runtime: 0.28742

-----  
File name: data/LTAF/26

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 177  
Annotation "(N" Count: 93  
Annotation "(SBR" Count: 196  
Annotation "(SVTA" Count: 4  
Annotation "(T" Count: 9

---

Annotation "MISSB" Count: 8

Evaluation Metrics:

Record: data/LTAF/26  
Accuracy: 0.43657  
Precision: 0.99423  
Sensitivity: 0.3921  
Specificity: 0.97255  
ECG\_time: 18:21:00  
AF\_time: 16:43:49  
N\_AF\_Episodes: 177  
Runtime: 0.17298

-----  
File name: data/LTAF/28

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 15  
Annotation "(AFIB" Count: 106  
Annotation "(B" Count: 11  
Annotation "(N" Count: 271  
Annotation "(SBR" Count: 161  
Annotation "(SVTA" Count: 29  
Annotation "(T" Count: 1

Evaluation Metrics:

Record: data/LTAF/28  
Accuracy: 0.98266  
Precision: 0.95596  
Sensitivity: 0.99647  
Specificity: 0.97519  
ECG\_time: 21:03:00  
AF\_time: 04:43:36  
N\_AF\_Episodes: 106  
Runtime: 0.27446

-----  
File name: data/LTAF/30

Unique Annotations:

Annotation "(AB" Count: 5  
Annotation "(N" Count: 14  
Annotation "(SVTA" Count: 8  
Annotation "PSE" Count: 1

Warning: Ignoring extra legend entries.

Evaluation Metrics:

Record: data/LTAF/30  
Accuracy: 1  
Precision: NaN  
Sensitivity: NaN  
Specificity: 1  
ECG\_time: 06:08:00  
AF\_time: 00:00:00  
N\_AF\_Episodes: 0  
Runtime: 0.077034

-----  
File name: data/LTAF/32

Unique Annotations:

Annotation " Aux" Count: 1

---

Annotation "(AB" Count: 174  
Annotation "(AFIB" Count: 361  
Annotation "(N" Count: 541  
Annotation "(SVTA" Count: 28  
Annotation "(VT" Count: 2  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/32  
Accuracy: 0.92418  
Precision: 0.28926  
Sensitivity: 0.58234  
Specificity: 0.9388  
ECG\_time: 20:28:00  
AF\_time: 00:36:26  
N\_AF\_Episodes: 361  
Runtime: 0.22563

---

File name: data/LTAF/33

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 120  
Annotation "(B" Count: 55  
Annotation "(T" Count: 41  
Annotation "(VT" Count: 23

Evaluation Metrics:

Record: data/LTAF/33  
Accuracy: 0.98778  
Precision: 0.9891  
Sensitivity: 0.99865  
Specificity: 0  
ECG\_time: 24:25:00  
AF\_time: 24:09:47  
N\_AF\_Episodes: 120  
Runtime: 0.299

---

File name: data/LTAF/34

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 5  
Annotation "(T" Count: 1  
Annotation "(VT" Count: 3

Evaluation Metrics:

Record: data/LTAF/34  
Accuracy: 0.99891  
Precision: 0.99984  
Sensitivity: 0.99908  
Specificity: 0  
ECG\_time: 24:34:00  
AF\_time: 24:32:53  
N\_AF\_Episodes: 5  
Runtime: 0.34726

---

File name: data/LTAF/35

Unique Annotations:

---

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 7  
Annotation "(N" Count: 147  
Annotation "(SBR" Count: 135  
Annotation "(SVTA" Count: 5  
Annotation "MISSB" Count: 2  
Annotation "PSE" Count: 10

Evaluation Metrics:

Record: data/LTAF/35  
Accuracy: 0.99833  
Precision: 0.9989  
Sensitivity: 0.99205  
Specificity: 0.99975  
ECG\_time: 24:22:00  
AF\_time: 03:52:13  
N\_AF\_Episodes: 7  
Runtime: 0.23889

-----  
File name: data/LTAF/37

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 56  
Annotation "(AFIB" Count: 4  
Annotation "(N" Count: 1447  
Annotation "(SBR" Count: 1392  
Annotation "(SVTA" Count: 38

Evaluation Metrics:

Record: data/LTAF/37  
Accuracy: 0.93235  
Precision: 0.0073301  
Sensitivity: 0.24265  
Specificity: 0.93374  
ECG\_time: 19:55:00  
AF\_time: 00:01:29  
N\_AF\_Episodes: 4  
Runtime: 0.17266

-----  
File name: data/LTAF/38

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1  
Annotation "(B" Count: 1  
Annotation "(IVR" Count: 2  
Annotation "(N" Count: 1236  
Annotation "(SBR" Count: 1232  
Annotation "(SVTA" Count: 3  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/38  
Accuracy: 0.99568  
Precision: 0.96949  
Sensitivity: 0.82926  
Specificity: 0.99941

---

ECG\_time: 24:28:00  
AF\_time: 00:25:41  
N\_AF\_Episodes: 1  
Runtime: 0.20828

-----  
File name: data/LTAF/39

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 28  
Annotation "(AFIB" Count: 141  
Annotation "(N" Count: 78  
Annotation "(SBR" Count: 56  
Annotation "(SVTA" Count: 6  
Annotation "PSE" Count: 3

Evaluation Metrics:

Record: data/LTAF/39  
Accuracy: 0.62801  
Precision: 0.97583  
Sensitivity: 0.56828  
Specificity: 0.92905  
ECG\_time: 25:00:00  
AF\_time: 21:26:04  
N\_AF\_Episodes: 141  
Runtime: 0.31625

-----  
File name: data/LTAF/42

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 30  
Annotation "(AFIB" Count: 122  
Annotation "(N" Count: 56  
Annotation "(SVTA" Count: 39  
Annotation "(VT" Count: 3

Evaluation Metrics:

Record: data/LTAF/42  
Accuracy: 0.97588  
Precision: 0.9443  
Sensitivity: 0.98891  
Specificity: 0.96893  
ECG\_time: 21:04:00  
AF\_time: 05:38:42  
N\_AF\_Episodes: 122  
Runtime: 0.28406

-----  
File name: data/LTAF/43

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 3  
Annotation "(VT" Count: 2

Evaluation Metrics:

Record: data/LTAF/43  
Accuracy: 0.99939  
Precision: 0.99993  
Sensitivity: 0.99947

---

Specificity: 0  
ECG\_time: 25:36:00  
AF\_time: 25:35:32  
N\_AF\_Episodes: 3  
Runtime: 0.25956

-----  
File name: data/LTAF/44

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 4  
Annotation "(VT" Count: 3  
Annotation "PSE" Count: 6

Evaluation Metrics:

Record: data/LTAF/44  
Accuracy: 0.99946  
Precision: 0.99992  
Sensitivity: 0.99955  
Specificity: 0  
ECG\_time: 25:23:00  
AF\_time: 25:22:22  
N\_AF\_Episodes: 4  
Runtime: 0.38964

-----  
File name: data/LTAF/45

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 82  
Annotation "(B" Count: 3  
Annotation "(N" Count: 277  
Annotation "(SBR" Count: 191  
Annotation "(SVTA" Count: 5

Evaluation Metrics:

Record: data/LTAF/45  
Accuracy: 0.98473  
Precision: 0.9307  
Sensitivity: 0.99215  
Specificity: 0.98303  
ECG\_time: 25:46:00  
AF\_time: 02:41:01  
N\_AF\_Episodes: 82  
Runtime: 0.23422

-----  
File name: data/LTAF/47

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 437  
Annotation "(AFIB" Count: 4  
Annotation "(B" Count: 5  
Annotation "(N" Count: 882  
Annotation "(SBR" Count: 417  
Annotation "(SVTA" Count: 18  
Annotation "(T" Count: 8  
Annotation "(VT" Count: 9



---

Annotation "MISSB" Count: 1  
Evaluation Metrics:  
Record: data/LTAF/47  
Accuracy: 0.93496  
Precision: 0.020871  
Sensitivity: 0.96923  
Specificity: 0.93491  
ECG\_time: 24:30:00  
AF\_time: 00:01:05  
N\_AF\_Episodes: 4  
Runtime: 0.21922

---

File name: data/LTAF/48  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 13  
Annotation "(VT" Count: 12  
Evaluation Metrics:  
Record: data/LTAF/48  
Accuracy: 0.99966  
Precision: 0.99966  
Sensitivity: 1  
Specificity: 0  
ECG\_time: 24:00:00  
AF\_time: 23:59:23  
N\_AF\_Episodes: 13  
Runtime: 0.3624

---

File name: data/LTAF/49  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 7  
Annotation "(IVR" Count: 1  
Annotation "(VT" Count: 5  
Annotation "M" Count: 3  
Annotation "PSE" Count: 179  
Evaluation Metrics:  
Record: data/LTAF/49  
Accuracy: 0.31289  
Precision: 0.99928  
Sensitivity: 0.31283  
Specificity: 0.45455  
ECG\_time: 24:00:00  
AF\_time: 23:58:38  
N\_AF\_Episodes: 7  
Runtime: 0.20673

---

File name: data/LTAF/51  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 35  
Annotation "(AFIB" Count: 68  
Annotation "(B" Count: 39  
Annotation "(N" Count: 348

---

Annotation "(SBR" Count: 186  
Annotation "(SVTA" Count: 5  
Annotation "(T" Count: 14  
Annotation "MB" Count: 2  
Annotation "MISSB" Count: 174  
Annotation "PSE" Count: 7

Evaluation Metrics:

Record: data/LTAF/51  
Accuracy: 0.9803  
Precision: 0.81087  
Sensitivity: 0.92469  
Specificity: 0.98434  
ECG\_time: 24:19:00  
AF\_time: 01:26:53  
N\_AF\_Episodes: 68  
Runtime: 0.26479

---

File name: data/LTAF/53

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 25  
Annotation "(AFIB" Count: 448  
Annotation "(N" Count: 339  
Annotation "(SBR" Count: 714  
Annotation "(SVTA" Count: 1  
Annotation "M" Count: 16  
Annotation "PSE" Count: 730

Evaluation Metrics:

Record: data/LTAF/53  
Accuracy: 0.87683  
Precision: 0.8686  
Sensitivity: 0.50267  
Specificity: 0.9792  
ECG\_time: 20:04:00  
AF\_time: 02:58:48  
N\_AF\_Episodes: 448  
Runtime: 0.12526

---

File name: data/LTAF/54

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/54  
Accuracy: 0.99855  
Precision: 1  
Sensitivity: 0.99855  
Specificity: NaN  
ECG\_time: 25:09:00  
AF\_time: 24:59:03  
N\_AF\_Episodes: 1  
Runtime: 0.32326

---

File name: data/LTAF/55

---

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 5  
Annotation "(AFIB" Count: 12  
Annotation "(N" Count: 22  
Annotation "(SVTA" Count: 4  
Annotation "MISSB" Count: 1

Evaluation Metrics:

Record: data/LTAF/55  
Accuracy: 0.99793  
Precision: 0.99763  
Sensitivity: 0.99394  
Specificity: 0.99923  
ECG\_time: 25:38:00  
AF\_time: 04:02:41  
N\_AF\_Episodes: 12  
Runtime: 0.25707

---

File name: data/LTAF/56

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 1  
Annotation "(N" Count: 4  
Annotation "(VT" Count: 1

Evaluation Metrics:

Record: data/LTAF/56  
Accuracy: 0.99756  
Precision: 0.99305  
Sensitivity: 1  
Specificity: 0.99624  
ECG\_time: 24:05:00  
AF\_time: 08:46:36  
N\_AF\_Episodes: 1  
Runtime: 0.3723

---

File name: data/LTAF/58

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 741  
Annotation "(AFIB" Count: 12  
Annotation "(B" Count: 3  
Annotation "(N" Count: 928  
Annotation "(SBR" Count: 22  
Annotation "(SVTA" Count: 153  
Annotation "(T" Count: 7

Evaluation Metrics:

Record: data/LTAF/58  
Accuracy: 0.78091  
Precision: 0.60143  
Sensitivity: 0.99208  
Specificity: 0.67724  
ECG\_time: 24:00:00  
AF\_time: 06:16:52

---

N\_AF\_Episodes: 12  
Runtime: 0.29542

---

File name: data/LTAF/60  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 2  
    Annotation "(VT" Count: 1  
Evaluation Metrics:  
    Record: data/LTAF/60  
    Accuracy: 0.99958  
    Precision: 0.99996  
    Sensitivity: 0.99962  
    Specificity: 0  
    ECG\_time: 22:34:00  
    AF\_time: 22:19:51  
    N\_AF\_Episodes: 2  
    Runtime: 0.3455

---

File name: data/LTAF/62  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 41  
    Annotation "(SBR" Count: 32  
    Annotation "(VT" Count: 8  
    Annotation "PSE" Count: 134  
Evaluation Metrics:  
    Record: data/LTAF/62  
    Accuracy: 0.99867  
    Precision: 0.99867  
    Sensitivity: 1  
    Specificity: 0  
    ECG\_time: 24:50:00  
    AF\_time: 24:47:28  
    N\_AF\_Episodes: 41  
    Runtime: 0.30637

---

File name: data/LTAF/64  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 1  
    Annotation "(VT" Count: 1  
Evaluation Metrics:  
    Record: data/LTAF/64  
    Accuracy: 0.38774  
    Precision: 0.25652  
    Sensitivity: 0.90557  
    Specificity: 0.23726  
    ECG\_time: 24:35:00  
    AF\_time: 05:42:33  
    N\_AF\_Episodes: 1  
    Runtime: 0.33231

---

File name: data/LTAF/65

---

---

Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 2  
Annotation "(VT" Count: 1

Evaluation Metrics:  
Record: data/LTAF/65  
Accuracy: 0.93851  
Precision: 0.99996  
Sensitivity: 0.93855  
Specificity: 0  
ECG\_time: 25:51:00  
AF\_time: 25:44:39  
N\_AF\_Episodes: 2  
Runtime: 0.24794

-----  
File name: data/LTAF/68

Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 6  
Annotation "(VT" Count: 5

Evaluation Metrics:  
Record: data/LTAF/68  
Accuracy: 0.99924  
Precision: 0.99988  
Sensitivity: 0.99936  
Specificity: 0  
ECG\_time: 24:00:00  
AF\_time: 23:55:35  
N\_AF\_Episodes: 6  
Runtime: 0.47591

-----  
File name: data/LTAF/69

Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:  
Record: data/LTAF/69  
Accuracy: 0.99493  
Precision: 1  
Sensitivity: 0.99493  
Specificity: NaN  
ECG\_time: 24:00:00  
AF\_time: 23:40:11  
N\_AF\_Episodes: 1  
Runtime: 0.36137

-----  
File name: data/LTAF/70

Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:  
Record: data/LTAF/70  
Accuracy: 1  
Precision: 1

---

Sensitivity: 1  
Specificity: NaN  
ECG\_time: 26:21:00  
AF\_time: 26:05:15  
N\_AF\_Episodes: 1  
Runtime: 0.33653

---

File name: data/LTAF/71

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/71  
Accuracy: 0.99987  
Precision: 1  
Sensitivity: 0.99987  
Specificity: NaN  
ECG\_time: 24:18:00  
AF\_time: 24:02:05  
N\_AF\_Episodes: 1  
Runtime: 0.30559

---

File name: data/LTAF/72

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 2  
Annotation "(AFIB" Count: 29  
Annotation "(B" Count: 41  
Annotation "(N" Count: 72  
Annotation "(SBR" Count: 4  
Annotation "(SVTA" Count: 5  
Annotation "(T" Count: 5  
Annotation "(VT" Count: 1  
Annotation "MB" Count: 3  
Annotation "MISSB" Count: 20  
Annotation "PSE" Count: 16

Evaluation Metrics:

Record: data/LTAF/72  
Accuracy: 0.98959  
Precision: 0.98962  
Sensitivity: 0.99871  
Specificity: 0.91969  
ECG\_time: 24:17:00  
AF\_time: 20:08:31  
N\_AF\_Episodes: 29  
Runtime: 0.39693

---

File name: data/LTAF/74

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 1044  
Annotation "(N" Count: 11  
Annotation "(SBR" Count: 1043

---

Annotation "(VT" Count: 2  
Annotation "M" Count: 41  
Annotation "PSE" Count: 1184

Evaluation Metrics:

Record: data/LTAF/74  
Accuracy: 0.89709  
Precision: 0.94963  
Sensitivity: 0.94046  
Specificity: 0.21236  
ECG\_time: 25:22:00  
AF\_time: 23:32:16  
N\_AF\_Episodes: 1044  
Runtime: 0.23432

-----  
File name: data/LTAF/75

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/75  
Accuracy: 0.99942  
Precision: 1  
Sensitivity: 0.99942  
Specificity: NaN  
ECG\_time: 20:58:00  
AF\_time: 20:48:17  
N\_AF\_Episodes: 1  
Runtime: 0.32953

-----  
File name: data/LTAF/100

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 72  
Annotation "(AFIB" Count: 659  
Annotation "(B" Count: 98  
Annotation "(N" Count: 839  
Annotation "(SBR" Count: 4  
Annotation "(SVTA" Count: 21  
Annotation "(T" Count: 24  
Annotation "(VT" Count: 1

Evaluation Metrics:

Record: data/LTAF/100  
Accuracy: 0.87557  
Precision: 0.50981  
Sensitivity: 0.72345  
Specificity: 0.8979  
ECG\_time: 23:53:00  
AF\_time: 01:53:30  
N\_AF\_Episodes: 659  
Runtime: 0.25884

-----  
File name: data/LTAF/101

Unique Annotations:

Annotation " Aux" Count: 1

---

Annotation "(AB" Count: 122  
Annotation "(AFIB" Count: 147  
Annotation "(B" Count: 153  
Annotation "(N" Count: 675  
Annotation "(SBR" Count: 5  
Annotation "(SVTA" Count: 221  
Annotation "(T" Count: 44

Evaluation Metrics:

Record: data/LTAF/101  
Accuracy: 0.92816  
Precision: 0.75835  
Sensitivity: 0.86035  
Specificity: 0.94241  
ECG\_time: 24:00:00  
AF\_time: 03:20:54  
N\_AF\_Episodes: 147  
Runtime: 0.25845

-----  
File name: data/LTAF/102

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 43  
Annotation "(N" Count: 46  
Annotation "(SVTA" Count: 2

Evaluation Metrics:

Record: data/LTAF/102  
Accuracy: 0.9921  
Precision: 0.98691  
Sensitivity: 0.86878  
Specificity: 0.99932  
ECG\_time: 24:00:00  
AF\_time: 00:51:37  
N\_AF\_Episodes: 43  
Runtime: 0.34957

-----  
File name: data/LTAF/103

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 824  
Annotation "(AFIB" Count: 1  
Annotation "(B" Count: 8  
Annotation "(N" Count: 2095  
Annotation "(SVTA" Count: 1369  
Annotation "(T" Count: 2  
Annotation "(VT" Count: 1

Evaluation Metrics:

Record: data/LTAF/103  
Accuracy: 0.59663  
Precision: 0.59676  
Sensitivity: 0.99961  
Specificity: 0  
ECG\_time: 24:00:00  
AF\_time: 12:26:55  
N\_AF\_Episodes: 1



---

Runtime: 0.426

-----  
File name: data/LTAF/104

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 3  
Annotation "(AFIB" Count: 16  
Annotation "(N" Count: 29  
Annotation "(SVTA" Count: 10  
Annotation "MISSB" Count: 1

Evaluation Metrics:

Record: data/LTAF/104  
Accuracy: 0.97433  
Precision: 0.50647  
Sensitivity: 0.72855  
Specificity: 0.98093  
ECG\_time: 18:18:00  
AF\_time: 00:24:01  
N\_AF\_Episodes: 16  
Runtime: 0.20212

-----  
File name: data/LTAF/105

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 1  
Annotation "(AFIB" Count: 96  
Annotation "(N" Count: 398  
Annotation "(SBR" Count: 301  
Annotation "(SVTA" Count: 1  
Annotation "M" Count: 1  
Annotation "MB" Count: 2  
Annotation "MISSB" Count: 72  
Annotation "PSE" Count: 303

Evaluation Metrics:

Record: data/LTAF/105  
Accuracy: 0.79463  
Precision: 0.93919  
Sensitivity: 0.11989  
Specificity: 0.99766  
ECG\_time: 20:49:00  
AF\_time: 05:11:07  
N\_AF\_Episodes: 96  
Runtime: 0.2036

-----  
File name: data/LTAF/110

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 60  
Annotation "(AFIB" Count: 22  
Annotation "(N" Count: 84  
Annotation "(SVTA" Count: 1

Evaluation Metrics:

Record: data/LTAF/110  
Accuracy: 0.99268

---

Precision: 0.91463  
Sensitivity: 0.99092  
Specificity: 0.99282  
ECG\_time: 23:50:00  
AF\_time: 01:09:57  
N\_AF\_Episodes: 22  
Runtime: 0.26527

-----  
File name: data/LTAF/111

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 21  
Annotation "(AFIB" Count: 26  
Annotation "(N" Count: 52  
Annotation "(SVTA" Count: 15  
Annotation "MISSB" Count: 1

Evaluation Metrics:

Record: data/LTAF/111  
Accuracy: 0.92307  
Precision: 0.99046  
Sensitivity: 0.81528  
Specificity: 0.99478  
ECG\_time: 24:00:00  
AF\_time: 08:26:24  
N\_AF\_Episodes: 26  
Runtime: 0.2488

-----  
File name: data/LTAF/112

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 7  
Annotation "(AFIB" Count: 1042  
Annotation "(N" Count: 1055  
Annotation "(SBR" Count: 22

Evaluation Metrics:

Record: data/LTAF/112  
Accuracy: 0.70432  
Precision: 0.80587  
Sensitivity: 0.63252  
Specificity: 0.79904  
ECG\_time: 24:00:00  
AF\_time: 10:49:36  
N\_AF\_Episodes: 1042  
Runtime: 0.31686

-----  
File name: data/LTAF/113

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 16  
Annotation "(AFIB" Count: 2  
Annotation "(N" Count: 19

Evaluation Metrics:

Record: data/LTAF/113  
Accuracy: 0.99412

---

Precision: 0.94499  
Sensitivity: 0.99947  
Specificity: 0.99353  
ECG\_time: 23:51:00  
AF\_time: 01:58:10  
N\_AF\_Episodes: 2  
Runtime: 0.30086

-----  
File name: data/LTAF/114

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 76  
Annotation "(AFIB" Count: 30  
Annotation "(N" Count: 132  
Annotation "(SVTA" Count: 35

Evaluation Metrics:

Record: data/LTAF/114  
Accuracy: 0.97491  
Precision: 0.34724  
Sensitivity: 0.71552  
Specificity: 0.97896  
ECG\_time: 24:00:00  
AF\_time: 00:12:47  
N\_AF\_Episodes: 30  
Runtime: 0.32147

-----  
File name: data/LTAF/115

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 41  
Annotation "(AFIB" Count: 175  
Annotation "(N" Count: 214  
Annotation "(SBR" Count: 2  
Annotation "(SVTA" Count: 19  
Annotation "PSE" Count: 1

Evaluation Metrics:

Record: data/LTAF/115  
Accuracy: 0.70855  
Precision: 0.95872  
Sensitivity: 0.68921  
Specificity: 0.82353  
ECG\_time: 24:00:00  
AF\_time: 20:15:32  
N\_AF\_Episodes: 175  
Runtime: 0.27646

-----  
File name: data/LTAF/116

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 86  
Annotation "(AFIB" Count: 25  
Annotation "(N" Count: 752  
Annotation "(SVTA" Count: 649  
Annotation "MISSB" Count: 1

---

Evaluation Metrics:  
Record: data/LTAF/116  
Accuracy: 0.8963  
Precision: 0.17821  
Sensitivity: 0.97272  
Specificity: 0.8945  
ECG\_time: 23:46:00  
AF\_time: 00:24:09  
N\_AF\_Episodes: 25  
Runtime: 0.30451

---

File name: data/LTAF/117  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 5  
Annotation "(N" Count: 4  
Annotation "(VT" Count: 1  
Annotation "MISSB" Count: 2  
Annotation "PSE" Count: 4

Evaluation Metrics:  
Record: data/LTAF/117  
Accuracy: 0.99911  
Precision: 0.99944  
Sensitivity: 0.99931  
Specificity: 0.99861  
ECG\_time: 24:00:00  
AF\_time: 09:11:35  
N\_AF\_Episodes: 5  
Runtime: 0.26016

---

File name: data/LTAF/118  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1  
Annotation "(N" Count: 7  
Annotation "(SVTA" Count: 5  
Annotation "(VT" Count: 1  
Annotation "MISSB" Count: 6

Evaluation Metrics:  
Record: data/LTAF/118  
Accuracy: 0.99915  
Precision: 1  
Sensitivity: 0.99698  
Specificity: 1  
ECG\_time: 24:00:00  
AF\_time: 04:11:33  
N\_AF\_Episodes: 1  
Runtime: 0.35058

---

File name: data/LTAF/119  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 52  
Annotation "(AFIB" Count: 87

---

Annotation "(N" Count: 340  
Annotation "(SBR" Count: 238  
Annotation "(SVTA" Count: 6  
Annotation "(T" Count: 2  
Annotation "(VT" Count: 37  
Evaluation Metrics:  
Record: data/LTAF/119  
Accuracy: 0.96521  
Precision: 0.91716  
Sensitivity: 0.8807  
Specificity: 0.98313  
ECG\_time: 24:00:00  
AF\_time: 02:16:45  
N\_AF\_Episodes: 87  
Runtime: 0.24276

---

File name: data/LTAF/120  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 2  
Annotation "(AFIB" Count: 37  
Annotation "(N" Count: 53  
Annotation "(SVTA" Count: 15  
Evaluation Metrics:  
Record: data/LTAF/120  
Accuracy: 0.99083  
Precision: 0.81256  
Sensitivity: 0.50151  
Specificity: 0.99825  
ECG\_time: 24:00:00  
AF\_time: 00:17:33  
N\_AF\_Episodes: 37  
Runtime: 0.28778

---

File name: data/LTAF/121  
Unique Annotations:  
Annotation " Aux" Count: 1  
Annotation "(AB" Count: 23  
Annotation "(AFIB" Count: 111  
Annotation "(B" Count: 298  
Annotation "(N" Count: 1335  
Annotation "(SBR" Count: 748  
Annotation "(SVTA" Count: 116  
Annotation "(T" Count: 124  
Annotation "(VT" Count: 2  
Annotation "PSE" Count: 211  
Evaluation Metrics:  
Record: data/LTAF/121  
Accuracy: 0.86392  
Precision: 0.6491  
Sensitivity: 0.86905  
Specificity: 0.86241  
ECG\_time: 20:42:00  
AF\_time: 03:14:08

---

N\_AF\_Episodes: 111  
Runtime: 0.19637

-----  
File name: data/LTAF/122

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AB" Count: 7  
Annotation "(AFIB" Count: 16  
Annotation "(B" Count: 368  
Annotation "(N" Count: 1078  
Annotation "(SBR" Count: 514  
Annotation "(SVTA" Count: 3  
Annotation "(T" Count: 188  
Annotation "PSE" Count: 2

Evaluation Metrics:

Record: data/LTAF/122  
Accuracy: 0.76396  
Precision: 0.67089  
Sensitivity: 0.51344  
Specificity: 0.88167  
ECG\_time: 24:00:00  
AF\_time: 08:43:01  
N\_AF\_Episodes: 16  
Runtime: 0.25301

-----  
File name: data/LTAF/200

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 19  
Annotation "(N" Count: 11  
Annotation "(T" Count: 2  
Annotation "(VT" Count: 5

Evaluation Metrics:

Record: data/LTAF/200  
Accuracy: 0.5921  
Precision: 0.99727  
Sensitivity: 0.59304  
Specificity: 0.028986  
ECG\_time: 23:53:00  
AF\_time: 23:50:26  
N\_AF\_Episodes: 19  
Runtime: 0.20159

-----  
File name: data/LTAF/201

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 7  
Annotation "(SBR" Count: 6  
Annotation "M" Count: 68  
Annotation "PSE" Count: 1374

Evaluation Metrics:

Record: data/LTAF/201  
Accuracy: 0.69945  
Precision: 0.99966

---

Sensitivity: 0.69959  
Specificity: 0.27586  
ECG\_time: 24:00:00  
AF\_time: 23:58:08  
N\_AF\_Episodes: 7  
Runtime: 0.21781

---

File name: data/LTAF/202

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 1

Evaluation Metrics:

Record: data/LTAF/202  
Accuracy: 1  
Precision: 1  
Sensitivity: 1  
Specificity: NaN  
ECG\_time: 24:00:00  
AF\_time: 23:59:51  
N\_AF\_Episodes: 1  
Runtime: 0.41135

---

File name: data/LTAF/203

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 6  
Annotation "(IVR" Count: 1  
Annotation "(VT" Count: 4

Evaluation Metrics:

Record: data/LTAF/203  
Accuracy: 0.98234  
Precision: 0.99971  
Sensitivity: 0.98262  
Specificity: 0  
ECG\_time: 18:10:00  
AF\_time: 18:09:04  
N\_AF\_Episodes: 6  
Runtime: 0.20847

---

File name: data/LTAF/204

Unique Annotations:

Annotation " Aux" Count: 1  
Annotation "(AFIB" Count: 334  
Annotation "(VT" Count: 333

Evaluation Metrics:

Record: data/LTAF/204  
Accuracy: 0.98575  
Precision: 0.98631  
Sensitivity: 0.99943  
Specificity: 0  
ECG\_time: 20:57:00  
AF\_time: 20:35:58  
N\_AF\_Episodes: 334  
Runtime: 0.42386

---

---

-----  
File name: data/LTAF/205  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 1  
Evaluation Metrics:  
    Record: data/LTAF/205  
    Accuracy: 1  
    Precision: 1  
    Sensitivity: 1  
    Specificity: NaN  
    ECG\_time: 24:00:00  
    AF\_time: 23:49:35  
    N\_AF\_Episodes: 1  
    Runtime: 0.3202  
-----

File name: data/LTAF/206  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 6  
    Annotation "(SBR" Count: 1  
    Annotation "(VT" Count: 4  
    Annotation "PSE" Count: 1  
Evaluation Metrics:  
    Record: data/LTAF/206  
    Accuracy: 0.99981  
    Precision: 0.99981  
    Sensitivity: 1  
    Specificity: 0  
    ECG\_time: 20:58:00  
    AF\_time: 20:47:16  
    N\_AF\_Episodes: 6  
    Runtime: 0.30147  
-----

File name: data/LTAF/207  
Unique Annotations:  
    Annotation " Aux" Count: 1  
    Annotation "(AFIB" Count: 17  
    Annotation "(VT" Count: 16  
    Annotation "PSE" Count: 2  
Evaluation Metrics:  
    Record: data/LTAF/207  
    Accuracy: 0.99859  
    Precision: 0.99908  
    Sensitivity: 0.99951  
    Specificity: 0  
    ECG\_time: 24:00:00  
    AF\_time: 23:49:22  
    N\_AF\_Episodes: 17  
    Runtime: 0.35925  
-----

File name: data/LTAF/208  
Unique Annotations:  
    Annotation " Aux" Count: 1  
-----



Annotation "(AFIB" Count: 1  
 Annotation "PSE" Count: 7  
 Evaluation Metrics:  
 Record: data/LTAF/208  
 Accuracy: 0.99956  
 Precision: 1  
 Sensitivity: 0.99956  
 Specificity: NaN  
 ECG\_time: 24:00:00  
 AF\_time: 23:55:16  
 N\_AF\_Episodes: 1  
 Runtime: 0.33373

Record	Sensitivity	Specificity	ECG_time	AF_time
"data/LTAF/00"	"0.98142"	"0.99806"	"20:58:00"	"02:14:54"
"data/LTAF/01"	"0.96631"	"0.14876"	"20:34:00"	"16:13:06"
"data/LTAF/03"	"0.98214"	"0.9748"	"24:16:00"	"01:20:03"
"data/LTAF/05"	"0"	"0.99897"	"24:19:00"	"00:00:40"
"data/LTAF/06"	"0.97838"	"0.99703"	"25:15:00"	"00:45:04"
"data/LTAF/07"	"0.96897"	"0.9598"	"25:32:00"	"03:24:47"
"data/LTAF/08"	"0.36759"	"1"	"25:45:00"	"00:01:38"
"data/LTAF/10"	"0.96726"	"0.99483"	"25:35:00"	"17:07:44"
"data/LTAF/11"	"0.9993"	"0"	"26:14:00"	"26:03:09"
"data/LTAF/12"	"0.99878"	"NaN"	"24:06:00"	"24:05:39"
"data/LTAF/13"	"0.87879"	"0.99855"	"19:56:00"	"04:56:14"
"data/LTAF/15"	"0.79786"	"0.53859"	"24:35:00"	"23:17:57"
"data/LTAF/16"	"0.92674"	"0.97585"	"24:00:00"	"00:19:57"
"data/LTAF/17"	"0.99981"	"NaN"	"24:56:00"	"24:55:10"
"data/LTAF/18"	"1"	"NaN"	"25:00:00"	"24:59:16"
"data/LTAF/19"	"0.44939"	"0.98838"	"24:00:00"	"00:05:03"
"data/LTAF/20"	"0.99844"	"0"	"24:19:60"	"24:19:09"
"data/LTAF/21"	"0.89526"	"NaN"	"21:06:00"	"20:56:25"
"data/LTAF/22"	"0.98342"	"0.6796"	"25:41:00"	"00:23:58"
"data/LTAF/23"	"0.99915"	"0.67966"	"25:39:00"	"05:59:42"
"data/LTAF/24"	"0.97576"	"0.98183"	"23:58:00"	"00:01:47"
"data/LTAF/25"	"1"	"0"	"18:20:00"	"18:01:49"
"data/LTAF/26"	"0.3921"	"0.97255"	"18:21:00"	"16:43:49"
"data/LTAF/28"	"0.99647"	"0.97519"	"21:03:00"	"04:43:36"
"data/LTAF/30"	"NaN"	"1"	"06:08:00"	"00:00:00"
"data/LTAF/32"	"0.58234"	"0.9388"	"20:28:00"	"00:36:26"
"data/LTAF/33"	"0.99865"	"0"	"24:25:00"	"24:09:47"
"data/LTAF/34"	"0.99908"	"0"	"24:34:00"	"24:32:53"
"data/LTAF/35"	"0.99205"	"0.99975"	"24:22:00"	"03:52:13"
"data/LTAF/37"	"0.24265"	"0.93374"	"19:55:00"	"00:01:29"
"data/LTAF/38"	"0.82926"	"0.99941"	"24:28:00"	"00:25:41"
"data/LTAF/39"	"0.56828"	"0.92905"	"25:00:00"	"21:26:04"
"data/LTAF/42"	"0.98891"	"0.96893"	"21:04:00"	"05:38:42"
"data/LTAF/43"	"0.99947"	"0"	"25:36:00"	"25:35:32"
"data/LTAF/44"	"0.99955"	"0"	"25:23:00"	"25:22:22"
"data/LTAF/45"	"0.99215"	"0.98303"	"25:46:00"	"02:41:01"
"data/LTAF/47"	"0.96923"	"0.93491"	"24:30:00"	"00:01:05"
"data/LTAF/48"	"1"	"0"	"24:00:00"	"23:59:23"

---

"data/LTAF/49"	"0.31283"	"0.45455"	"24:00:00"	"23:58:38"
"data/LTAF/51"	"0.92469"	"0.98434"	"24:19:00"	"01:26:53"
"data/LTAF/53"	"0.50267"	"0.9792"	"20:04:00"	"02:58:48"
"data/LTAF/54"	"0.99855"	"NaN"	"25:09:00"	"24:59:03"
"data/LTAF/55"	"0.99394"	"0.99923"	"25:38:00"	"04:02:41"
"data/LTAF/56"	"1"	"0.99624"	"24:05:00"	"08:46:36"
"data/LTAF/58"	"0.99208"	"0.67724"	"24:00:00"	"06:16:52"
"data/LTAF/60"	"0.99962"	"0"	"22:34:00"	"22:19:51"
"data/LTAF/62"	"1"	"0"	"24:50:00"	"24:47:28"
"data/LTAF/64"	"0.90557"	"0.23726"	"24:35:00"	"05:42:33"
"data/LTAF/65"	"0.93855"	"0"	"25:51:00"	"25:44:39"
"data/LTAF/68"	"0.99936"	"0"	"24:00:00"	"23:55:35"
"data/LTAF/69"	"0.99493"	"NaN"	"24:00:00"	"23:40:11"
"data/LTAF/70"	"1"	"NaN"	"26:21:00"	"26:05:15"
"data/LTAF/71"	"0.99987"	"NaN"	"24:18:00"	"24:02:05"
"data/LTAF/72"	"0.99871"	"0.91969"	"24:17:00"	"20:08:31"
"data/LTAF/74"	"0.94046"	"0.21236"	"25:22:00"	"23:32:16"
"data/LTAF/75"	"0.99942"	"NaN"	"20:58:00"	"20:48:17"
"data/LTAF/100"	"0.72345"	"0.8979"	"23:53:00"	"01:53:30"
"data/LTAF/101"	"0.86035"	"0.94241"	"24:00:00"	"03:20:54"
"data/LTAF/102"	"0.86878"	"0.99932"	"24:00:00"	"00:51:37"
"data/LTAF/103"	"0.99961"	"0"	"24:00:00"	"12:26:55"
"data/LTAF/104"	"0.72855"	"0.98093"	"18:18:00"	"00:24:01"
"data/LTAF/105"	"0.11989"	"0.99766"	"20:49:00"	"05:11:07"
"data/LTAF/110"	"0.99092"	"0.99282"	"23:50:00"	"01:09:57"
"data/LTAF/111"	"0.81528"	"0.99478"	"24:00:00"	"08:26:24"
"data/LTAF/112"	"0.63252"	"0.79904"	"24:00:00"	"10:49:36"
"data/LTAF/113"	"0.99947"	"0.99353"	"23:51:00"	"01:58:10"
"data/LTAF/114"	"0.71552"	"0.97896"	"24:00:00"	"00:12:47"
"data/LTAF/115"	"0.68921"	"0.82353"	"24:00:00"	"20:15:32"
"data/LTAF/116"	"0.97272"	"0.8945"	"23:46:00"	"00:24:09"
"data/LTAF/117"	"0.99931"	"0.99861"	"24:00:00"	"09:11:35"
"data/LTAF/118"	"0.99698"	"1"	"24:00:00"	"04:11:33"
"data/LTAF/119"	"0.8807"	"0.98313"	"24:00:00"	"02:16:45"
"data/LTAF/120"	"0.50151"	"0.99825"	"24:00:00"	"00:17:33"
"data/LTAF/121"	"0.86905"	"0.86241"	"20:42:00"	"03:14:08"
"data/LTAF/122"	"0.51344"	"0.88167"	"24:00:00"	"08:43:01"
"data/LTAF/200"	"0.59304"	"0.028986"	"23:53:00"	"23:50:26"
"data/LTAF/201"	"0.69959"	"0.27586"	"24:00:00"	"23:58:08"
"data/LTAF/202"	"1"	"NaN"	"24:00:00"	"23:59:51"
"data/LTAF/203"	"0.98262"	"0"	"18:10:00"	"18:09:04"
"data/LTAF/204"	"0.99943"	"0"	"20:57:00"	"20:35:58"
"data/LTAF/205"	"1"	"NaN"	"24:00:00"	"23:49:35"
"data/LTAF/206"	"1"	"0"	"20:58:00"	"20:47:16"
"data/LTAF/207"	"0.99951"	"0"	"24:00:00"	"23:49:22"
"data/LTAF/208"	"0.99956"	"NaN"	"24:00:00"	"23:55:16"

*Published with MATLAB® R2022b*