Project Themes

1. Statistics application in medicine: clinical and epidemiological data analysis : statistical test, sample size, methods for data collection ; analysis using regression methods, missing data, correlated data, efficiency of treatment,
2. Linear models : regression, generalized regression models, logistic regression, maximum likelihood, EM algorithm, nonparametric maximum likelihood and applications
3. Outlier detection, analysis of means, CUSUM and sequential probability ration testing. Applications
4. Time series, Statistics for stationary process: Asymptotic results for stationary time series. Estimating trend and seasonality. Nonparametric methods. Multidimensional time series, multidimensional ARMA and ARIMA models, parameter estimation, forecasting, variance decomposition ; Statistical applications to economics, modelling of economics and financial data.
5. Marketing Analytics, Customer churn prediction, models and analysis, customer behaviors modelling (in bank services, credit cards, communications services, ...)
6. Network traffics analysis : modelling, methods, time series representation, congestion control, performance evaluation, network attacks detection
7. Statistical modelling in biomedicine, models, methods and prediction ; test statistics, goodness of fit test, model evaluation, ROC curve
8. Data collection : Incomplete data : missing data, imbanlance data, approaches ; data fusion ; classification.
9. Geophysical data analysis : time series , noise, enhancement, models, methods, forecasting
10. Highdimentional data analysis : Bioinformatic, design of experiment, representation of data, variable selection, classification and prediction, evaluation.