



## Personal Information

30 September 1978  
Reus (Spain), Spanish  
Married, 1 child (5)  
Julius-Vosseler Straße 15  
Hamburg (22527)  
Germany

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🔗 [https://www.xing.com/profile/Xavier\\_NuelGavalda/cv](https://www.xing.com/profile/Xavier_NuelGavalda/cv)

## Education

**Google Data Analytics Certificate**  
Coursera, 09.2021  
**Machine Learning Masters Certificate**  
iNeuron, 09.2020  
**PhD Physics**  
University of Paris-Saclay,  
Paris (France)  
12.2012 - 09.2016  
**Master Accelerator Physics**  
Autonomous University  
of Barcelona, Cerdanyola  
del Vallès (Spain)  
09.2011 - 09.2012  
**Degree in Physics**  
University of Barcelona,  
Barcelona (Spain)  
09.1997 - 06.2007

## Language Skills

Catalan: Native  
Spanish: Native  
English: Fluent  
French: Intermediate  
German: B1 (Telc)

## Awards

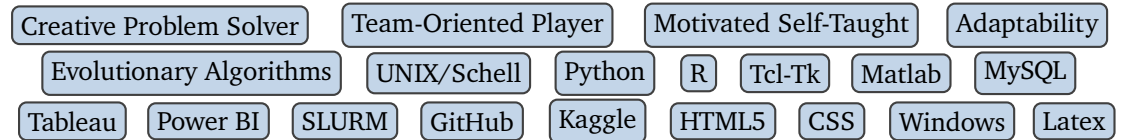
**OPAC**  
Marie Curie Fellow  
2012-2016

# Xavier Nuel Gavalda

## Physicist, PhD

**About Me** As a former scientific researcher in Accelerator Physics, I have experience conducting a great variety of theoretical and modeling studies applying computer science techniques like Genetic Algorithms. Now I am looking for greater opportunities and growth in the Data Science and Data Analytics domains. I am a motivated self-taught and inspired team partner, passionate for technology and Artificial Intelligence.

## Core Competencies



## Recent Work Experience

### 02.2016 - 06.2020, Deutsches-Elektronen-Synchrotron (DESY), Hamburg (Germany)

Postdoctoral researcher. Detailed achievements:

- Conducted PETRA IV storage ring lattice design, beam dynamics studies (ELEGANT, MAD-X), and optimization applying Genetic Algorithms (NSGA-II, MOPSO).
- Participated in the design, study and optimization of the PETRA IV beam dump scenario using Monte Carlo simulations (FLUKA and Geant4 codes).
- Liaise with other technical groups to ensure a consistent technically feasible design.
- Participated in the operation and commissioning of the accelerator.

## Personal Projects

### End-to-end Machine Learning Regression Project: [University Student Admission Prediction](#)

- Predicted the admission of a student in a University taking into account different education scores and ratings.
- Developed regression model using Linear, Lasso, Ridge and ElasticNet Regressions, Decision Tree, Random Forest, K-Nearest-Neighbor, and Support Vector Machines algorithms.
- Learnt Pandas, Numpy, Ipython, Matplotlib, Scikit-Learn, Seaborn, administered installations.
- Familiarized with EDA, and feature selection.
- Learnt and applied Regularization and Hyperparameter Tunning (GridSearchCV) techniques.
- Evaluated and compared accuracies with R2 and adjusted-R2. An obtained score of 74%.
- Introduced with Flask and HTML5 language to show the regression model predictions in a web UI. Model deployed on Heroku.

### End-to-end Machine Learning Classification Project: [Diabetes Prediction](#)

- Predicted whether a person is diabetic or not according to several medical parameters like, among others, glucose and insulin blood levels, the diabetes pedigree function, and age.
- Developed classification model with Logistic Regression, Decision Tree, Random Forest, XG-Boost, K-Nearest Neighbor, Support Vector Machines, Naive Bayes, and Linear Discriminant Analysis algorithms.
- Upgraded skills Pandas, Numpy, Ipython, Matplotlib, Scikit-Learn, Seaborn and Jupyter Notebook. Upgraded with EDA, feature selection.
- Learnt and applied Hyperparameter Tunning (GridSearchCV), Ensemble (Bagging and Passing), K-fold Cross-Validation and Stacking techniques to improve the accuracy.
- Evaluated and compared accuracies computing the Confusion Matrix, Precision, Recall, F1-Score, AUC and ROC. Obtained accuracy of 90%. Model deployed on Heroku.

### Natural Language Processing Project: [NLP Disaster Tweets](#)

- Predicted whether a tweet can truly communicate and announce a natural disaster or not.
- Familiarized with text visualization, filtering Stop Words, encoding text data. Introduced with Term Frequency, Inverse Document Frequency, and Synthetic Minority Oversampling techniques.
- Developed classification model with Logistic Regression, Decision Tree, Random Forest, XG-Boost, K-Nearest Neighbor, Support Vector Machines, Naive Bayes, and Linear Discriminant Analysis algorithms.
- Upgraded and applied Hyperparameter Tunning (GridSearchCV), Ensemble (Bagging and Passing), K-fold Cross-Validation and Stacking techniques to improve the accuracy.
- Evaluated and compared accuracies with usually metrics. Obtained accuracy of 98.3%.