www.linkedin.com/in/cesarpbernal/ cesarpbn1@gmail.com www.github.com/cesarpbn1

CÉSAR RENÉ PABON BERNÁL

EDUCATION

- M.A. Statistics : Honors
  Hunter College-The City University of New York (CUNY)-New York, NY (Dec) *2019*
- B.A. Applied Mathematics & Statistics : Honors
  Hunter College-The City University of New York (CUNY)-New York, NY (Dec) *2018*
- B.A. Chemistry I : ACS
  Hunter College-The City University of New York (CUNY)-New York, NY (Dec) *2011*

CERTIFICATIONS

- Deep Learning Specialization
  Deeplearning.ai: 5 course program using Python & TensorFLow (Dec) *2019*
- Introduction to SQL
  University of Michigan (via Coursera): 4 week program using MAMP (Aug) *2019*
- Machine Learning Certification
  Stanford University (via Coursera): 11 week program using Matlab (Apr) *2018*
- Data Science Intensive
  Springboard : 6 month program using Python (Mar) *2018*

SKILLS

- Python : Jupyter; Numpy, Pandas, Scikit-learn, Scipy, Matplotlib, StatsModel, Seaborn, Tensorflow
- R : R-studio; Deployer, Tidyr, Stingr, Lubridate, Ggplot • SQL: Atom text editor, PHP
- Matlab : 1D/2D/3D data, Structured/nested format files , Basic scripting, function & syntax
- SPSS : Model Analysis (Quantitative, Stepwise Regression, Hierarchical, Categorical, Time Series)

SUPPORTED COURSEWORK

- Modern Statistical Methods: Machine Learning with concentration in Supervised Learning (Linear Regression, Logistic Regression, Neural Networks, KNN, Random Forests and SVMs), Unsupervised Learning (K-Means Clustering, LDA and PCA)
- Statistics: General Linear Models,Spatial & Time Series (Geo-statistics, Point-Patterns, AR, MA, ARIMA, GARCH), Bayesian, Statistical Significance (T-test, P-Values, F-stat, Z-test, Chi-Square, ANOVA, Hypothesis Testing, Stochastic Processes, Markov Chains

PUBLICATIONS

2013 *Self-Organization of Zr (IV) Porphyrinoids on Graphene Oxide Surfaces by Axial Metal Coordination*. Jurow, M. J.; Viacheslav, S.; **Pabon, C.**; Hageman, B.; Matolina, Y.; Drain, C. M. Inorganic Chemistry, 2013, 52 (18), pp 10576-10582

2013 *Controlling Morphology and Molecular Packing of Alkane Substituted Phthalocyanine Blend Bulk Heterojunction Solar Cells*. Jurow, M. J.; Hageman, B. A.; DiMasi, E.; Nam, C.-Y.; **Pabon, C.**; Black, C. T.; Drain, C. M. Journal of Materials Chemistry A 2013

2012 *Facile synthesis of a flexible tethered porphyrin dimer that preferentially complexes fullerene C70*. Jurow, M.; Farely C.; **Pabon, C.**; Hageman, B.; Dolor, A.; Drain, C.M. Chemical Communications, 2012, 48 (39): 4731-4733

LANGUAGES

- English (fluent) • Spanish (fluent) • Italian (Conversational)

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PROJECTS

2019 Time Series Analysis of Citibike Data in New York City

- Python was utilized for data wrangling and exploration
- R programming was implemented for seasonality of 'Total Trips Per Day' & 'Total Miles Per Day'
- 20 models were made with different parameters & transformations: AR, MA, ARIMA, GAURCH

2019 Spectral Changes in Unique Conformations of Carbohyrdate A154

- Python scripting was utilized to create a Parcer that iterates over a 10K gaussian log files
- XYZ coordinates, Energy, Frequency and Intensity were collected per conformation.
- Using the Pendry Factor & RMSD for metrics comparisons, a final analysis reporting correlating changes of the IR spectra with geometrical changes is expected May 2019

2019 Exploration of Regression Splines in Real Estate Valuation

- Using R, smoothing splines (a flexible technique) is implemented to Taiwanese Real Estate.

2019 Santander Customer Transaction Prediction (Kaggle Competiton)

- Python was utilized for Neural Networks; benchmarked with Logistic Regression + PCA
- Current model tests a precision score of 79% & accuracy score of 80%

2019 Systematic Biases in Clinical Trials due "Lost to Follow-Up"

- Theoretical Analysis of systematic losses in Phase I & II Clinical Trials; dropouts & replacements
- Using R, thesis incorporated simulations to appropriately address conclusions

2018 Can Personality Features Predict Substance Abuse?

- Python was utilized for data wrangling, exploration, statistical analysis, & predictive modeling
- Logistic Regression was implemented to predict the probability binary correlation of opioid consumption for each individual based on respective personality attributes

EXPERIENCE

2019-*present:* Adjunct Lecturer: Departments of Mathematics/Statistics, Chemistry/Biochemistry
Hunter College CUNY, New York, NY 10065

- STAT113: Elementary Probability and Statistics (25 students
- STAT295: Sampling for Polling and Surveys (16 students)
- CHEM106 General Chemistry Laboratory

RESEARCH

2018-*present :* Graduate Research Assistant: Computational Chemistry (Hunter College CUNY)

- Research focuses on the theoretical study of trisaccharides. Using Python scripting, our objective is to analyze the conformational changes of carbohydrates with respect to their IR spectra

2011-2015 : Research Assistant: Nanotechnology & Materials Science (Hunter College CUNY)

- Research focused on the synthesis of donor/acceptor porphyrinoid systems through conduct of supramolecular chemistry & self assembly focusing in large conjugated molecules; porphryin and pthalocyanines. I focused on non covalently functionalized graphene & graphene-oxide systems, molecular & nano frameworks, photonic devices a& small molecule bulk heterojunction solar cells