Felipe Pérez

https://github.com/scy1505 | 706-888-6390 (Toronto) | felipe.perez.ds@gmail.com
Blog: https://scy1505.github.io/

SUMMARY

Data Scientist with Phd. in mathematics, proficient in data mining, supervised and unsupervised machine learning techniques, including an ample knowledge in deep learning. Strong programming skills, with expertise in Python and Scala.

TECHNICAL SKILLS

Programming Languages: Python (TensorFlow, Pandas, Scikit-learn, Numpy, Scipy, Matplotlib) | SQL | Scala | Spark | LaTeX |

Machine Learning: | Deep Learning | Classification | Regression | XGBoost | Random Forest | K-Means | Naïve Bayes | GLM | Natural Language Processing | ARIMA | SVM | SVC

PROFESSIONAL DEVELOPMENT

Project Highlights

- Built model to predict the sales rank of products from the Amazon reviews dataset. The model was build by engineering features, coming from sources that included sentiment analysis and statistics of the function given by number of cumulative reviews. The project was finalist in the Hackon(Data) competition 2017.
- Designed several small NLP projects ranging from vector embedding models to text generation. Models build by means of deep neural networks using TensorFlow. This projects are part of a NLP talks series that I have been giving since June 2017.
- Build several deep learning models for ArXiv Abstracts text classification, including a convolution neural network, and a space embedding model followed by dense layers. (On going).
- By using bayesian techniques, successfully modeled the Thermoplasma acidophilum proteasome core particle gating with a high level of precision. This was part of a joint work with one of the top NMR labs in the country.
- Implemented random walk behavior to simulate molecular interaction in a confined finite space.

PROFESSIONAL EXPERIENCE

Postdoctoral Researcher, Georgia State University **2015.8 – 2017.5**

Conducted research in Algebraic Geometry and Commutative Algebra, and gave math courses:

- Produced three papers on the topic of the behavior of singularities in positive characteristic published in top journals (e.g. Transactions of the American Mathematical Society.)
- Gave math courses at undergraduate and graduate levels.

GSI, University of Michigan. **2009.8 – 2015.5**

Conducted research and taught undergraduate-level classes:

- Produced four papers on the topic of invariants associated to singularities published in top journals (e.g. Journal of Algebra.)
- Taught eight undergraduate-level math classes, including differential, integral, and several variable calculus, linear algebra, and received great student evaluations.

HONORS AND GRANTS (Selected)

- HackerRank 97th percentile Algorithms, 3 silver and 1 bronze medals, 2015-2017.
- The Pat Shure Excellence in Teaching Award, 2015.
- Michigan Mathematics Graduate Fellowship, 2009-2015.
- Alice Webber Glover Fellowship, Summer 2011.
- Master Fellowship from Mazda Foundation for Arts and Science, 2007-2009.
- Third Prize International Math Competition, 2005.

EDUCATION

University of Michigan **2009.8 - 2015.5**
Ph.D., Mathematics.
Thesis: Comparing invariants between positive and zero characteristic singularities.

Universidad Nacional de Colombia **2007.1 - 2009.4**
Master, Mathematics.
Thesis: On Koh's Conjecture.

Universidad Nacional de Colombia **2003.1 - 2006.12**
B.S., Mathematics.

PUBLICATIONS (Selected)

- R. Huang, **Pérez, F**, "Probing the cooperativity of Thermoplasma acidophilum proteasome core particle gating by NMR spectroscopy", 2017. *Proceedings of the National Academy of Sciences* (under revision).
- D. Hernández*, L. Núñez-Betancourt*, **F**. **Pérez***, and E. Witt*, "Lyubeznik numbers and the injective dimension of local cohomology modules in mixed characteristic", 2017. *Transactions of the American Mathematical Society*. (In press). *Shared first authorship.
- A. De Stefani*, L. Núñez-Betancourt*, and **F. Pérez***, "On the existence of F-thresholds and related limits", 2017. *Transactions of the American Mathematical Society*. (In press) *Shared first authorship.
- L. Núñez-Betancourt*, **F**. **Pérez***, "F-jumping and F-Jacobian ideals for hypersurfaces.", 2016. *Journal of Pure and Applied Algebra.* *Shared first authorship.
- **Pérez, F**. "On the constancy regions for mixed test ideals", 2013. *Journal of Algebra.*