Liam Toran

San Francisco, CA

📞 (415)-410-9920 • ✉ liam.toran@gmail.com • 🌐 liamkesatoran.github.io

Driven Data Scientist with an international background in research and strong analytical skills. Fluent in Python and Maths.

Education

Ecole Normale Superieure de Lyon (ENS Lyon)   **France**

Master's Degree in Applied Mathematics   *2018*

- Studied Machine Learning, advanced Statistics, Numerical Methods, Statistical Physics, Stochastic Calculus, Probabilistic Graphical Models, Convex Optimization, Dynamical Evolution Equations, Harmonic Fluid Dynamics and more.

Bachelor's Degree in Computer Science and Bachelor's Degree in Mathematics   *2016*

- Studied Algorithms, Data Structures, Linear Algebra, Programming and Junior level classes in Physics.
- Entered ENS Lyon, **a top 3 school in France**, through a top 0.5% ranking in nation-wide competitive exams.

Experience

University of Nice Sophia-Antipolis, J.A.Dieudone Research Institute   **Nice, France**

Technical Research Assistant, 6 months   *2019*

- Simulated and analyzed Dynamical Networks, e.g. social media networks or fungus growth.
- Mastered new models and uses of stochastic and partial differential equations in population dynamics.
- Implemented state-of-the-art numerical fluid simulation techniques and predictive models through Python.
- Solved the relationship between the physical parameters and the propagation speed for dynamical branching networks.

UCSD, Biomedical Research Institute, Knight Lab   **San Diego, USA**

Machine Learning Research Assistant Intern, 5 months   *2017*

- Analyzed compositional microbiological datasets using supervized & unsupervized learning.
- Coded several new compositional biostatistics analysis methods with Python & applied them to the Knight Lab datasets.
- Met with stakeholders and explained them how the new treatments were found and would work.
- Discovered a long time unresolved bias that arises during unsupervized SVD dimensionality reduction and it's cause.
- Found a way to resolve it using better metrics. **Led a conference in front of 55 scientists** to explain the phenomenon.
- This led to the following *research article* (11 citations).

Inria, BiPoP team   **Grenoble, France**

Intern, Computer Graphics Algorithms, 3 months   *2016*

- Modelized, simulated, optimized and controlled cloth's move with implicit contact and exact friction.
- Solved and simulated use cases and prototypes of the problem in Python.
- Built a new scalable solver of the problem. Implemented it in production software using C and C++.
- The resulting solver was **ten times faster** than the previous product. This led to the following *research article* (8 citations).

Professional Skills

Software Development: Python (Jupyter, Pandas, scikit-learn, Keras, PyTorch, TensorFlow, Matplotlib, . . .), C, C++, SQL, Linux, Git, LaTeX, MatLab, Lisp, OCaml, Excel.

Machine Learning: Regression, Classification, Clustering, Deep Learning, Computer Vision, Natural Language Processing (NLP), Scoring, Metrics, Data Visualization.

Statistical Models: Linear, Decision Trees, Random Forests, Boosting, SVMs, Graphs, Neural Networks.

Languages: **English & French:** Fluent (native)   **Japanese:** Basic (self-taught)

Projects

Asteroid Size Estimator: Kaggle notebook comparing 8 different regression techniques on a NASA database. The max accuracy achieved was 85% on noisy & corrupted data using XGBoost, data cleaning & feature transformation.

Wikipedia Promotional Article Classifier: 0/1 Classification problem for detecting bad wikipedia articles with Keras NLP Tokenization & LSTM Neural Network. 80% ROC AUC score and accuracy score.