DAVID KARAPETYAN

New York, NY • 202-460-5173
david.karapetyan@gmail.com
linkedin.com/in/dkarapetyan
github.com/dkarapetyan

EXPERIENCE

Fellow **Sep 2016–Present**
Insight Data Science New York, NY

- Implemented an application that takes an excel spreadsheet from Good Shepherd, a non-for-profit client, and extracts the most important features driving matriculation into their LifeLink college access and success program.
- Extracted features via recursive feature elimination using a series of Random Forests cross-validated by ROC-AUC score.
- Built interactive visual analytics for the client to help identify the types of students that stay in the program, and who go on to stay in college, after the critical features have been identified.
- App deployed on personal website at `davidkarapetyan.com/feature_teacher` via Heroku, with code utilizing Flask, Bokeh, and Twitter Bootstrap.

Head Data Scientist **June 2015–Sep 2016**
Rudin Management New York, NY

- Designed and implemented a **machine learning forecasting and analytics engine** for Rudin Management's non-commercial buildings.
- Improved upon the startup and rampdown classification accuracy of the previous existing model, as well as the regression predictions of electricity usage, water usage, steam usage, and occupancy by reducing the mean generalization errors and variance of the errors.
- Implemented using **parallel programming in Python** with an emphasis on **functional programming**, in order to process and predict states for many buildings at once.
- Set **Pandas** Dataframes as the central data-structure of the suite (almost all functions return a dataframe). Generated using queries to local **SQL**, **MongoDB** databases, and **HDF5** files.
- Applied **Scikit-learn** in order to build an ensemble model consisting of **Random Forests**, **Gradient Boosted Trees**, **ARIMA(X)**, **SARIMA(X)**, and **SVM**.
- Results include less heat being used in the winter, and cooling in summer, amounting to roughly $\$2,000,000$ in savings for Rudin.

Quantitative Analyst **June 2014–June 2015**
Ernst & Young New York, NY

- Applied **Monte Carlo and Finite Difference** schemes to determine fair value of client derivatives.
- Designed and performed Greeks **stress-tests** for investment bank client's pricing models for **CCAR** purposes.
- Provided data analysis of trade desk definitions and descriptions, and reported anomalies to client.

Visiting Assistant Professor **July 2012–July 2014**
University of Rochester Rochester, NY

- Researcher of partial differential equations, with an emphasis on nonlinear evolution equations.
- Taught courses on Numerical Analysis, Linear Algebra, Differential Equations, and Financial Mathematics.

EDUCATION

University of Notre Dame **2007–2012**
- **Ph.D**, Mathematics. Notre Dame, IN
- Awarded the **Schmitt Fellowship**.

University of California, Berkeley **2000–2004**
- **B.S.**, Mathematics and **B.A.**, English Literature. Berkeley, CA
- Awarded the **Regents Scholarship**. Full scholarship.

TECHNICAL SKILLS

- Python (full SciPy stack, Flask), Scala, R, C/C++, SQL, LaTeX, Git, MongoDB, HDF5, Debian/Ubuntu, FreeBSD
- Chess Expert `chessdryad.com/articles/mi/article_165.htm`