ANTOINE PETIT

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EDUCATION

University of Illinois at Urbana-Champaign **Urbana, IL**
Ph.D. in Transportation Engineering Jan. 2015 – May 2020

M.S. in Civil Engineering Aug. 2013 – Dec. 2014
Concentration in Operations Research

Ecole Centrale **Lille, France**
B.S./M.S. in Engineering Sep. 2011 – June 2013
Concentration in Advanced Mathematics and Applied Mathematics

Relevant coursework: Machine Learning, Optimization of Large-Scale Systems, Logistics Systems Analysis, Data Mining, Database Systems, Graph Theory, Stochastic Processes, Numerical Analysis

EXPERIENCE

University of Illinois at Urbana-Champaign **Urbana, IL**
Research Assistant Jan. 2015 – present
- Formulated mathematical models for transit system design and control to improve commuters' experience
- Designed customized algorithms (e.g. heuristic algorithms, approximate dynamic programming) to solve optimization problems and provide near-optimal design and operations decisions.
- Programmed models, algorithms and object-oriented simulations (using Python, MATLAB, AMPL)
- Authored 4 peer-reviewed publications totaling 24 citations and presented at several international conferences

Insight Data Science **New York, NY**
Data Science Fellow Sep. 2019 – Nov. 2019
- Collaborated with a consumer video tech company to understand what drives its users to make in-game purchases
- Developed the inference pipeline to ingest and clean over 10GB of raw data in BigQuery using SQL
- Increased in-app purchases potentially by 6% using feature selection and prediction models to adjust game flow
- Presented recommendations to company executive team who decided to implement the proposed game flow strategy

PROJECTS

Framework for Integrating Complex Urban Systems May 2017 – Aug. 2019
- Developed simulation models for urban systems analysis (e.g., traffic analysis, infrastructure interdependencies) to understand how populations react to major disruptions (e.g. terrorist attack, natural disasters)
- Collaborated with scientists and U.S. Army Corps of Engineers to integrate models into object modeling software

Talk show viewership (personal project) April 2019 – June 2019
- Designed data extraction pipeline for three French talk shows from semi-structured website using BeautifulSoup
- Uncovered major viewership insights and predicted audience using SARIMAX models

Development of an Overweight Permit Fee Structure for Illinois May 2015 – Feb. 2017
- Teamed up with the Illinois Department of Transportation to devise data-driven fee structure charged for Overweight vehicle (OWV) permits
- Assessed safety costs via multivariate regression of crash-based models on large (5GB) datasets (using R, SQL)
- Provided fee structure recommendation that mitigates the impact of OWV on roadway safety

SKILLS

- Python, MATLAB, Java
- SQL, BigQuery, Microsoft Access, Spark
- NumPy, SciKit-learn, Pandas, StatsModels
- Matplotlib, Seaborn, Dash/Plotly
- Optimization, Linear Algebra, Supervised Learning, Clustering, Time Series Analysis