Jingmin Sun

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EDUCATION

- **Rensselaer Polytechnic Institute(RPI)**, TROY, NY **Graduation in Dec. 2019**

  Bachelor of Mathematics. **GPA: 3.98/4.0**

PROJECTS

- **MortalityMinder, RPI** July.2019-present
  - Impute the missing Mortality rate and social determinants
  - Utilize machine learning algorithm to find the most important social determinants related to different causes of mortality
  - Develop website to visualize the data and design the User Interface.
- **Driving on Electric Vehicles, MCM** January,2018
  - Analyze the growth pattern of Tesla in urban and rural areas, and connect it to different local factors.
  - Build a simulation model to simulate the Tesla's energy use and distributions of charging stations.
  - Build an evaluation model to rate the performance of each design related to its cost and efficiency.
  - Connect our models to the real-life cases and take specific regions as examples.
- **Auto Life-Saver (Making plans for Drones to Disaster Relief)** February,2019
  - Identify the best location(s) of ISO cargo containers on Puerto Rico , i.e. the droneGo disaster response system, to provide sufficient medical supplies and video reconnaissance.
  - Design the packing configuration of drones in each ISO cargo container and set of medical packages in each drone Cargo, that will meet the requirements of medical packages in different delivery locations after Puerto Rico hurricane.
  - Provide the delivery routes, schedules and flight plans for drones to satisfy medical package requirements and enable the use of video cameras in each delivery location

Relevant Courses

- **Computational Optimization** Spring 2019
  - Introduction and implementation to multiple nonlinear optimization algorithm (Proximal Gradient Method, Barzilai-Borwein method, Augmented Lagrange Method, Alternating Direction Method of Multipliers, etc.)
  - A final project to implement Support Vector Machine method by ALM (Augmented Lagrange Method) with quadratic penalty and the classical one.
- **Intro to Operations Research** Fall 2018
  - Introduction and implementation to linear optimization algorithm and methods (Simplex Algorithm, Brand-And-Brunch Algorithm, Primal-dual interior point methods, Primal-Affine interior point methods, Dijkstra's algorithm,etc.)
  - A final project to minimize the cost for ZICO to build hydroelectric power station and optimize the transportation of the electricity to meet the demand in household in the river basin.
- **Numerical Computing** Spring 2019
  - Introduction to the basis of scientific computing, and the algorithms to numerically solve the linear algebra problems, interpolate the function, and do integration/ differentiation.
  - Weekly small project to implement the numerical methods (Jacobi Method, Gauess-Seidel Method, Richardson Extrapolation, etc.)
- **Intro to Data Math** Spring 2019
  - Introduction to the mathematical base (linear algebra) of clustering and classifying data.

  - Weekly project to implement the clustering methods and machine learning algorithms to make prediction. (k-means, Principal Component Analysis, Logistic/Linear Regression)

- **Probability** Fall 2018
  - Introduction to discrete, continuous probability model on single and multiple variables. (Binomial Distribution, Normal Distribution, Exponential Distribution, Poisson Distribution, etc.)

    Introduction to random walk (Markov-Chain)

    Introduction to Convolution of multiple random variables

    And a brief introduction in simulating the distributions.

Research Interest

- **Operations Research and Data Science**
- **Scientific Computing And Numerical Analysis**
- **Environmental Modeling**

Technical skill:

- Program language: Experience with C, **C++**, **Java**, **Matlab**, R, AMPL
- Web development: HTML, CSS, Javascript
- Typing: Latex writing
- Language: Native speaker in Chinese; English