Ishan Saran

Postgraduate associate

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Education

Emory University — *Atlanta, GA*

Bachelor of Science in Physics, summa cum laude — *May 2020*

- Major GPA: **3.87/4.00**; Overall GPA: **3.74/4.00**

Ed. W Clark High School — *Las Vegas, NV*

Advanced Honors Diploma — *May 2017*

- GPA: **3.78/4.00**

Skills

Languages Python, R, Java, Processing; Hindi, Chinese (conversational)

Interests Dimensionality reduction, Transfer learning, Health-care machine learning, Prognostic modeling, Natural language processing

Experiences

Yale School of Medicine, Clinical and Translational Research Accelerator — *New Haven, CT*

Postgraduate Associate — *June 2020 - current*

- Work alongside physicians and biostatisticians to create and validate statistical and computational models for various patient populations.
- Incorporate data mining techniques to health systems to assist physician prognosis of diseases.
- Helped assemble articles for a systematic review of physician versus computer model prediction performance.

Emory Departments of Physics and Biology — *Atlanta, GA*

Student Honors Research, Advisor: **Dr. Gordon Berman** — *September 2018 - May 2020*

- Built computational models (RNNs, CNNs, etc.) to model and predict fly dynamics and build behavioral representations in Python.
- Compared different statistical techniques (t-SNE, UMAP, etc.) to reduce the dimensionality of big data in Python.
- Completed and defended honor's thesis titled *Representing Fly Behavior with Recurrent Neural Networks* with highest honors

Yale School of Medicine, Program of Applied Translational Research — *New Haven, CT*

Student Researcher — *May 2019 - August 2019*

- Developed and tested different machine learning models to predict outcomes of patients with acute kidney injury, end-stage renal disease in pediatric patients, readmission probability within 30 days of heart failure patients in Python.
- Worked alongside biostatistician to create and verify data sets for future analysis; including elements of data cleaning and feature engineering.

Emory Department of Physics — *Atlanta, GA*

Physics mentor, TA — *September 2018 - May 2020*

- Taught introductory physics (3 semesters); covered topics on kinematics and motion, classical and fluid mechanics, thermodynamics, electricity and magnetism, and optical and wave phenomena
- Taught advanced electricity and magnetism (1 semester); covered topics including using Fourier series to construct voltage functions, deriving optical phenomena from Maxwell's equations, Fresnel equations, radiation pressure, etc.

Projects

github.com/isaranwrap

Interdisciplinary Contest in Modeling

- Built a computational model to quantify the economic value of ecosystem services for land development projects
- Won the outstanding winner award at the COMAP Interdisciplinary Contest in Modeling competition - the highest honor awarded to 19 teams out of 11,262 worldwide
- Published in the Journal of Undergraduate Mathematics and its Applications, titled *A Monetary Evaluation of Ecosystem Services*

Language of Science Corpus

- Built a corpus from journals from the American Journal of Sociology and American Sociology Review for further natural language processing via the optical character recognition package PyTesseract

Packages

- **akiFlagger:** A package to flag individuals with acute kidney injury (AKI) from longitudinal data of creatinine values in **Python** and **R**
- **cellare:** A cellular automaton-based stochastic epidemiological package to model infectious disease spread in **Python**