

Ishan Saran

AI RESEARCHER

☎ (702) 375-1516 | ✉ ishansaran65@gmail.com | 🏠 isaranwrap.github.io | 🌐 isaranwrap

Experiences

Yale School of Medicine, Clinical and Translational Research Accelerator

New Haven, CT

POSTGRADUATE RESEARCH ASSOCIATE, ADVISOR: **DR. F PERRY WILSON, PROFESSOR OF NEPHROLOGY**

Jun 2020 - Dec 2022

- Designed and tested the model architecture for various prognostic models with biostatisticians, physicians, and machine learning experts to optimize statistical metrics; e.g. AUC-ROC scores. *Key areas: feature engineering, dimensionality reduction, model development*
- Published 6+ papers in the nephrology space and created a computation tool to enhance the detection and standardized coding of *acute kidney injury* packages in R and Python; an app, website and documentation at <https://akiflagger.readthedocs.io>. *Key areas: full-stack development, R Shiny, nephrology*
- Assembled and reviewed articles to generate a systematic review of physician versus computer model prediction performance and abnormal etiologies of secondary hypertension, acute kidney injury electronic alerts. *Key areas: paediatrics, secondary hypertension, exploratory data analysis*

Emory University, Departments of Physics and Biology

Atlanta, GA

HONORS RESEARCH, ADVISOR: **DR. GORDON BERMAN, PROFESSOR OF BIOLOGY AND BIOMEDICAL ENGINEERING**

Sep 2018 - May 2020

- Built computational models (RNNs, CNNs, etc.) to model and predict fly dynamics and build behavioral representations in Python. *Key areas: neural networks, postural decomposition, theoretical biophysics*
- Compared different statistical techniques (t-SNE, UMAP, etc.) to reduce the dimensionality of big data in Python. *Key areas: dimensionality reduction, hyperparameter optimization, model selection*
- Honor's Thesis:* Completed and defended undergraduate thesis *Representing Fly Behavior with Recurrent Neural Networks* to obtain highest honors in Physics. *Key areas: Drosophila research, computational ethology, machine learning*

Princeton Center for the Physics of Biological Function

Princeton, NJ

SUMMER STUDENT, **DR. BILL BIALEK AND DR. JOSHUA SHAEVITZ, PROFESSORS OF PHYSICS**

Jun 2019 & Jun 2020 - Aug 2020

- Selected amongst a group of 30 to participate in a biophysics summer symposium on state-of-the-art physical modeling techniques. *Key areas: bird-song and bacterial motion patterns, Drosophila embryology, behavioral representations*
- Carried out lab research to determine motility patterns in bacterial populations; applied tracking algorithms in Python for bacterial and bird populations. *Key areas: E. coli research, fluid dynamics, flock dynamics*

Yale School of Medicine, Program of Applied Translational Research

New Haven, CT

STUDENT RESEARCHER, ADVISOR: **DR. F PERRY WILSON, PROFESSOR OF NEPHROLOGY**

May 2019 - August 2019

- Developed and tested different machine learning models to predict outcomes and develop risk scores for patients with acute kidney injury, end-stage renal disease in pediatric patients, recovery rates for heart failure patients in Python. *Key areas: cardiology, nephrology, paediatrics*
- Worked alongside biostatistician to create and clean focal segmental glomerulosclerosis data sets for future analysis. *Key areas: data cleaning, feature engineering, model selection*

Emory Department of Physics

Atlanta, GA

PHYSICS MENTOR, TA; ADVISOR: **DR. THOMAS BING, PROFESSOR OF PHYSICS**

September 2018 - May 2020

- Taught introductory physics (3 semesters) covering topics on kinematics and motion, classical and fluid mechanics, thermodynamics, electricity and magnetism, and optical and wave phenomena. *Key areas: classical mechanics, electrodynamics, thermodynamics*
- Taught upper-level electricity and magnetism (1 semester) covering topics including Fourier series for voltage functions, deriving elementary phenomena from Maxwell's equations, Fresnel equations, radiation pressure, etc. *Key areas: optics, statistical mechanics, electrodynamics*

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, HTML, CSS & JavaScript; learning more! Chinese 中文, Hindi, English, Spanish (conversational)

Interests Data analysis & visualization, machine learning & statistics, mathematics & physics modeling

Hobbies Chess, Running, Dancing

Publications

[1] Nugent, James T., Kuan Jiang, Melissa C. Funaro, **Ishan Saran**, Chelsea Young, Lama Ghazi, Christine Y. Bakhoun, F. Perry Wilson, and Jason H. Greenberg. "Does This Child With High Blood Pressure Have Secondary Hypertension?: The Rational Clinical Examination Systematic Review." **JAMA** 329, no. 12 (**2023**): 1012-1021.

[2] James T Nugent, Chelsea Young, Melissa C Funaro, Kuan Jiang, **Ishan Saran**, Lama Ghazi, F Perry Wilson, and Jason H Greenberg. Prevalence of secondary hypertension in otherwise healthy youth with a new diagnosis of hypertension: A meta-analysis. **The Journal of Pediatrics**, **2022**.

[3] Aditya Biswas, **Ishan Saran**, and F Perry Wilson. Introduction to supervised machine learning. **Kidney360**, 2(5):878–880, **2021**.

[4] Ibrahim Sandokji, Yu Yamamoto, Aditya Biswas, Tanim Arora, Ugochukwu Ugwuowo, Michael Simonov, **Ishan Saran**, Melissa Martin, Jeffrey M Testani, Sherry Mansour, et al. A time-updated, parsimonious model to predict aki in hospitalized children. **Journal of the American Society of Nephrology**, 31(6):1348–1357, **2020**.

[5] Ugochukwu Ugwuowo, Yu Yamamoto, Tanim Arora, **Ishan Saran**, Caitlin Partridge, Aditya Biswas, Melissa Martin, Dennis G Moledina, Jason H Greenberg, Michael Simonov, et al. Real-time prediction of acute kidney injury in hospitalized adults: implementation and proof of concept. **American Journal of Kidney Diseases**, 76(6):806–814, **2020**.

[6] Ramos E, Rexer E, **Saran I**. A Monetary Evaluation of Ecosystem Services. **UMAP Journal**. **2019** Jun 1;40.

Honors, Awards and Memberships

- 2020-2023** Former American Society of Nephrology (ASN) and American Physical Society member & scholar
- 2021-2022** Co-Captain of Yale Chess Club
- 2019 & 2021** Kidney STARS Award Receptient; attendend and presented at ASN Kidney Week
- 2020** Attended and presented at neuromatch3.0, Computational Neuroscience conference
- 2017-2020** President, Vice President, Captain of Emory Chess Club
- 2019-2020** Co-captain and Co-founder of Emory Agnition
- 2017** Biomedical Debate State Champion
- 2016-2017** Gold Medalist in Anatomy & Physiology in the Nevada Science Olympiad
- 2016-2017** Top 10 International Public Forum Debate Champion
- 2015-2016** US Chess Denker Tournament of High School Champions, Top Upset Prize
- 2012-2017** 5-time Nevada State Chess Champion