Hrishikesh Rao, Ph.D.

Email ■ rishi.gatech@gmail.com
LinkedIn ■ www.linkedin.com/in/HrishikeshRao/
Location ■ Altanta, GA
Visa required - NO
Immigration status - US permanent resident
Best way to contact- Primarily throught LinkedIN or email
Open for relocation - He is based out of Atlanta,GA and is open for remote or hybrid options.
Career interests - Looking for an exciting opportunity to apply my extensive skills in machine learning and data science to bring about a positive impact to businesses and mentor junior data scientists.

Career summary

Seasoned machine learning and data science professional with expertise in fraud detection and retail. Specialized in retail personalization, including virtual try-on, email marketing, and size prediction. Holds multiple patents in fraud detection, securing multi-million dollar deals. Proven ability to communicate technical concepts effectively to non-technical stakeholders.

Key Skills & Competencies

- Machine Learning
- Deep Learning
- Prompt engineering
- Data Visualization
- Leading Research Initiatives
- Leadership
- Data Manipulation
- Written & Verbal Communication

Professional Experience

Levi Strauss & Co. **Atlanta, GA** **Oct 2021 – Present**

Senior Data Scientist – Personalization

Drove substantial business impact at Levi Strauss as a Senior Data Scientist by optimizing email marketing, introducing a successful virtual try-on solution, and implementing innovative models for outfit recommendations and e-commerce interactions, resulting in significant operational efficiencies and financial gains.

Selected Achievements:

- Investigated the impact of Apple's privacy update on email marketing, collaborating with stakeholders to mitigate effects, utilizing a random forest classifier for propensity rate modeling. The package used in this was scikitlearn and involved ensuring that the model didn't cause a severe impact to the user population in deciles.
- Led the development of a successful virtual try-on prototype for jeans, utilizing convolutional neural networks, resulting in high internal approval from stakeholders. This used computer vision techniques and the codebase was in Python with Torch being used as the deep learning framework.
- Implemented outfit recommendation using user-generated content, benchmarking Levi's outfitting solutions with OpenAI's multimodal CLIP model. This served as a benchmark for developing an in-house outfitting tool.
- Designed and implemented a statistical model using scikitlearn and numpy for e-commerce size interaction, integrated into the recommendation engine, yielding positive A/B test outcomes in add to bag rates and annualized return savings of ~$1 million. Led a team of data scientists and was the go-to person between machine learning engineering and data science to execute this project on a tight deadline.
- Designed a carousel for product comparison using Google's PALM API leveraging its LLM and NLP techniques, streamlining descriptions and enhancing customer experience. This was a cost effective mechanism that didn't rely on any third party vendor and was scalable to all products within the Levi's catalog.
- Collaborated cross-functionally with engineering and business teams to ensure timely data access and alignment of data science initiatives with business objectives.
- Mentored interns and junior data scientists in their projects and ensured timely delivery of them along with providing them autonomy with a keen interest in their growth within the team.

Pindrop Security **Atlanta, GA** **Jan 2016 – Oct 2021**

Senior Research Scientist – Audio Analytics

Support the design and implementation of machine-learning and signal processing algorithms for existing products in addition to developing and validating enhancements and novel applications to new business areas. Conduct quantitative analysis on customer data (banks, retail, & insurance companies) and translate into stories easily understood by non-technical stakeholders.

Selected Achievements:

- Enhanced voice biometric solution by 10% through deep learning models, resulting in a patented end-to-end Python module tested on a $1M health insurance customer deal. This involved building a deep regression model coded in Python and keras was the deep learning framework used.
- Prototyped a voice conversion system using generative adversarial networks, gaining attention for potential applications on proprietary projects. This involved testing various models and tweaking them
- Developed multiple novel technologies related to keyword spotting, biometric system development using keypresses, and speaker verification improvements with each resulting in a patent. Modeling techniques used in this were gaussian mixture modeling, long short-term memory (LSTM), and multilayer perceptrons.
- Collaborated with customer success team to gather requirements, reducing response time to <1 minute on customer inquiries.
- Worked on multiple proofs of concept (POC) showcasing the fraud catching abilities of Pindrop's flagship fraud prevention product and analyzed the data to produce metrics for the customer in terms of annualized savings and FTE requirements.

Additional Experience

Graduate Research Experience | Georgia Institute Of Technology | Atlanta, GA
Summer Research Intern | Nexidia Inc. | Atlanta, GA
Service Student Activity Council | CSIP – Georgia Institute Of Technology | Atlanta, GA

Education

Doctor of Philosophy (Ph.D.) – Electrical & Computer Engineering, Georgia Institute of Technology
Master of Science (M.Sc.) – Electrical & Computer Engineering, Georgia Institute of Technology
Bachelor of Engineering (B.E.) – Instrumentation Engineering, University of Mumbai

Technology Proficiency

SQL | Scikit Learn | NumPy | Matplotlib | Tensorflow | Pandas | Python | Keras | UNIX Shell Scripting | MySQL | AWS | GCP

Awards & Grants

- Outstanding Service Award, Georgia Institute of Technology, May 2014
- ISCA student grant (offered to 60 students worldwide) for 2013 Interspeech conference in Lyon, France August 2013
- Sir Ratan Tata Trust Award for Academic Excellence, University of Mumbai, 2005 – 2006

Publications/Books/Patents/Presentations

- Hrishikesh Rao, Mark A. Clements, Yin Li, Meghan Rae-Swanson, Joseph Piven, Daniel S. Messinger "Paralinguistic Analysis of Children's Speech in Natural Environments." Mobile Health: Sensors, Analytic Methods, and Applications

- Hrishikesh Rao. "Unsupervised keyword spotting and word discovery for fraud analytics." U.S. Patent Application No. 16/775,149.

URL - https://patentimages.storage.googleapis.com/bb/73/3c/377481f7e2b300/US11810559.pdf

Publicity link - https://www.pindrop.com/blog/pindrops-record-breaking-year-patents-in-2022

- Hrishikesh Rao, Kedar Phatak, Elie Khoury. "Improving Speaker Recognition with Quality Indicators." U.S. Patent Application No. 17/408,281

URL - https://patentimages.storage.googleapis.com/54/39/96/523a9dbfa0465c/US20220059121A1.pdf

- Hrishikesh Rao, Kedar Phatak, Elie Khoury. "Improving Speaker Recognition with Quality Indicators." In IEEE Spoken Language Technology (SLT) Workshop 2021

- Rahul Pawar, Aaron Albin, Udit Gupta, Hrishikesh Rao, Caroline Carberry, Amarelle Hamo, Rebecca M Jones, Catherine Lord, Mark A Clements. "Automatic analysis of LENA recordings for language assessment in children aged five to fourteen years with application to individuals with autism." In IEEE EMBS International Conference on Biomedical and Health Informatics (BHI) 2017

- Hrishikesh Rao, Zhefan Ye, Yin Li, Mark A. Clements, Agata Rozga, and James M. Rehg. "Combining acoustic and visual features to detect laughter in adults speech." In FAAVSP 2015, Vienna, Austria

- Hrishikesh Rao, Jonathan C. Kim, Mark A. Clements, Agata Rozga, and Daniel S. Messinger. ”Detection of Children’s Paralinguistic Events in Interaction with Caregivers.” In INTERSPEECH 2014, Singapore
- Hrishikesh Rao, Jonathan C. Kim, Agata Rozga, and Mark A. Clements. ”Detection of Laughter in Children’s Speech Using Spectral and Prosodic Acoustic Features.” In INTERSPEECH 2013, Lyon, France, pp. 1399-1403.
- Jonathan C. Kim, Hrishikesh Rao, and Mark A. Clements.” Formant frequency tracking using Gaussian mixtures with maximum a posteriori adaptation.” In INTERSPEECH 2013, Lyon, France, pp. 1399-1403.
- James M. Rehg, Gregory D. Abowd, Agata Rozga, Mario Romero, Mark A. Clements, Stan Sclaroff, Irfan Essa, Opal Y. Ousley, Yin Li, Chanho Kim, Hrishikesh Rao, Jonathan C. Kim, Liliana Lo Presti, Jianming Zhang, Denis Lantsman, Jonathan Bidwell, and Zhefan Ye.” Decoding children’s social behavior.” In 2013 IEEE Conference on Computer Vision and Pattern Recognition (CVPR), pp. 3414-3421.
- Jonathan C. Kim, Hrishikesh Rao, and Mark A. Clements.” Investigating the use of formant-based features for detection of affective dimensions in speech.” In 2011 Affective Computing and Intelligent Interaction (ACII), Memphis, TN, pp. 369-377.
- Hrishikesh Rao, Jonathan C. Kim, Agata Rozga, and Mark A. Clements. Paralinguistic Event Detection in Children’s Speech.” In IMFAR 2014, Atlanta, GA.