# Arun Nemani











### **Education**

#### **PhD | Biomedical Engineering** Rensselaer Polytechnic Institute 2012-2017

- Research: machine learning, image processing, brain imaging, surgical skill assessment
- Advisors: Suvranu De, Xavier Intes

#### MS | Biomedical Engineering Rensselaer Polytechnic Institute 2010-2012

 Research: image processing, virtual simulators, surgical skill assessment

#### **BS** Biomedical Engineering

University of Minnesota - Twin Cities 2005-2009

#### **Skills**

#### Languages

Python • SQL • bash Terraform • Matlab • C++ • R

#### **Machine Learning**

Open source frameworks

PyTorch • Tensorflow • hugging-face • scikit-learn • pandas • numpy • scipy catboost • airflow • XGBoost dask • shap • sentence-transformers • lifelines

#### Algorithms

deep learning • CNN • transformers gradient boosting • contrastive-learning clustering • regression • classification survival • PCA / LDA • bayesian methods model selection • model validation

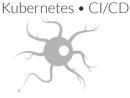
#### Healthcare

Real world data (RWD) • EHR • ICD-9/10 Electrocardiograms • Echocardiograms Medical imaging • Cardiology • Oncology

#### General

Databricks • AWS • GCP • Azure • (yup, all three)

LTEX • linux • UNIX • git • docker spark • DBT • CUDA • OpenCV



### **Experience**

## Senior Staff Machine Learning Engineer | Altana Al %

Nov 2014 - Present

- Designed, validated, and deployed a narcotics screening classifier trained on 200M transactions (PR AUC = 0.22 @ 0.0001 prevalence), running at 50ms p50 latency and handling 10M inferences/week for a Fortune 50 firm. Patent pending.
- Designed, validated, and deployed a Bayesian regressor using **4B** global supply chain data to estimate declared value and flag anomalies for anti-laundering, miss-valuation, and tariff evasion; serves **3B** inferences/week for multiple U.S. federal agencies. **Patent pending.**

## Senior Staff Machine Learning Scientist | Tempus AI & Aug 2019 - 2024

- Co-invented the FDA 510(k) approved Tempus Atrial Fibrillation (AF) algorithm
  aimed to predict first time AF risk within one year. Deep learning model is trained
  on 3.5M ECGs from 2M patients (ROC AUC = 0.84) and is deployed four+
  hospital systems.
- Inventor and owner of the Tempus ECG training platform, a distributed cloud-based GPU modeling framework that powers all multi-modal research and cardio ECG production models, generating \$10M+ in revenue.
- Served as lead data engineer for Tempus Cardio with responsibilities ranging from creating databases for EHR and imaging data and successful integration of four healthcare partners consisting of 2.5M+ patients and 10TB+ worth of data enabling data access to 10+ team members.
- Validated and implemented a de-identification pipeline to scalably de-identify 1 billion clinical notes from 2.5M patients within 40 hours yielding 98% sensitivity.
- Led org-wide documentation protocols to establish best practices on coding standards, cloud computing fundamentals, and clinical validation methods.

## Founder and Chief Scientist | Draycon Labs %

Jul 2019 - Feb 2025

• Build, validated, and deployed a cloud-based deep learning segmentation platform for end-end histology and automated imaging analysis workflows for Fortune 500 medical device firms with 100% license renewal rate for 6 years.

## survival • PCA / LDA • bayesian methods model selection • model validation Jul 2019 Sr. Data Scientist | Food Genius (acquired by US Foods) Survival • PCA / LDA • bayesian methods Jul 2019

• Designed, built, and deployed a full-stack, machine-learning based web app that predicts supply chain service levels enterprise wide, with **36%** higher balanced accuracy than food industry standards

## **Key Publications and Patents**

#### **Articles**

- Prediction of mortality from 12-lead electrocardiogram voltage data using a deep neural network *Nature Medicine* %
- Deep Neural Networks Can Predict New-Onset Atrial Fibrillation From the 12-Lead ECG and Help Identify Those at Risk of Atrial Fibrillation–Related Stroke Circulation •
- Assessing bimanual motor skills with optical neuroimaging *Science Advances* **%** Patents
- US11869668B2, US20230245782A1, US11657921B2, US20230028783A1, US20210076960A1