Sreeram Marimuthu

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Professional Summary: MS Data Science, WPI. **2 YEARS: Industry experience**. Seeking full-time Data Scientist/Research positions to effectively contribute towards meaningful research. **F1-OPT, No Sponsorship Required for next 3 years.**

SKILLS:

Programming Languages / Libraries - Python (Pandas, NumPy, scikit-learn, NLTK), R, SQL, Git
ML / AI - scikit-learn, PyTorch, Hugging Face (BERT, RoBERTa, Llama-(3.1, 3.3), AutoML, GANs, Few-Shot Learning (GPT-4o)
Cloud / DevOps - AWS (Redshift, S3), Databricks, MLflow, Azure DevOps, Docker, Jira, Scrum Agile
Data Visualization / QA - Tableau, Plotly, ggplot, API and Headless Testing (QA), Product & Defect Management
Research Interests - Human-in-the-Loop, AI Bias, Healthcare, LLM Evaluation, Behavioral/Cognitive Analytics, Neuroscience

EDUCATION:

Worcester Polytechnic Institute (WPI) – Master of Science, Data Science | GPA: **4.0/4.0** | **May 2025**
Anna University – Bachelor of Engineering, Electrical and Electronics Engineering | GPA: 3.88/4.0 | May 2021

INDUSTRY EXPERIENCE:

Data Scientist (*Summer Intern*) | *Harvard Medical School & Massachusetts General Hospital, USA* | *June 2025 - Present*
- Led a Latent Class Analysis (LCA) linking Adverse Childhood Experience profiles to alcohol- and drug-use risk in underserved populations; designed, fitted, and validated the modeling process, utilized a mixed-methods approach.
- Built an end-to-end research pipeline (*Python+R*) - survey data pre-processing, medical coding, LCA, cartesian products, and a multi-variate analysis adjusting for predictors to find ORs, while cutting the analysis time by >60 %.
- Co-authoring two clinical research papers, interpreting the model results & associations with Dr. Jenny Zhen-Duan and the MGH Disparities Research Unit, to effectively inform community-health interventions.

Machine Learning Engineer | *Discern Health, Worcester, USA* | *August 2024 – December 2024*
- Spearheaded a clinical ML project "Frailty Detection & Management", we integrated clinical, socioeconomic, and claims data to identify key frailty markers such as comorbidity scores, ADL limitations, and improved model interpretability.
- Designed 10 experiments, developed Machine Learning models - 3 focused on Predictive modeling (Frailty Detection -> Kim CFI Score forecasting) and 7 dedicated to Phenotype Modeling - spanning over whole patient populations, gender-specific subgroups, and top-feature subsets to ensure comprehensive, data-driven insights.
- Built predictive models to forecast Kim CFI frailty scores, achieving RMSE: 0.0052 and R^2: 0.9956 and classifiers on 53 frailty-indicators (e.g., Alzheimer's/Dementia, Rheumatoid Arthritis, and General Health) achieving AUCs up to 0.98.

Research Intern/KIP Fellow | *Advocates for Community Transfer (ACT), Texas, USA* | *May 2024 – July 2024*
- Executed geo-spatial & crime data analysis across four major Texas cities, leveraging Google Maps and data mining techniques, alongside raw data from US Census to inform legal strategy and feasibility reports.
- Identified narcotic crime patterns in high-risk, low-income neighborhoods across the state through clustering and analyzed demographic-crime correlation studies to support targeted interventions.
- Developed interactive maps, visual dashboards, streamlined data discovery and pre-processing workflows to improve stakeholder communication and decision-making.

Application Development Analyst | *Accenture, Chennai, India* | *August 2021 – July 2023*
- Fast-track promoted from Associate, based on performance & proficiency shown in TechLeap Data Analytics program.
- Automated critical workflows, such as data creation and pre-processing, cutting the execution time from 2-3 minutes to instant, boosting operational efficiency and user experience.
- Managed QA initiatives across cross-functional teams, reducing post-deployment issues by 35%. Performed API, automation, and headless testing on high-volume datasets, ensuring end-to-end data integrity and system reliability.
- Partnered with product owners, designers and business analysts to identify gaps, refine requirements, and enhance product quality through data-driven insights. Sole Subject Matter Expert for secure, customer-facing data channels (FIRE), ensuring compliance and data integrity, and ensured it remained defect-free environment across 10 releases.

RESEARCH EXPERIENCE:

Research Study Assistant | *Worcester Polytechnic Institute, USA*   **| *August 2024 – May 2025***
- First authored a paper in this NSF-awarded project advancing the field of Human-AI collaboration in Table Unionability.
- Engaged in this Directed Research project with Dr. Roee Shraga, exploring Human-in-the-Loop frameworks for improving data integration & discovery tasks. Investigated the interplay between large language models (LLMs), machine learning (ML), and human metacognition to address bias, trust, and usability in AI-assisted decision-making.
- Designed and executed cognitive experiments that simulate real-world data acquisition, quantifying human reasoning under uncertainty using principles from psychology and AI.
- Exploring behavioral patterns in Human-AI collaboration over tabular data, with emphasis on error correction, judgment calibration, and interpretability.

Research Analyst | *The City of Worcester, Worcester, USA*   **| *September 2024 – May 2025***
- Led data-driven public health research with the Commissioner of Health & Human Services, influencing city-wide policy and strategic planning in Worcester. Performed exploratory research on homelessness patterns using PIT Count and Census data, assessing shelter availability access, demographic disparities, and service utilization.
- Analyzed police incident report data to identify temporal and geographic crime trends, informing strategic first responder deployment and associated costs to optimize emergency resource allocation.
- Investigated the social, behavioral, and health determinants across 14 major Massachusetts cities in collaboration with MPHA and MLCHC to identify systemic gaps in housing and healthcare.

Research Assistant II/AI Engineer | *WPI, Worcester, USA*   **| *August 2024 – December 2024, June 2025 – Present***
- Partnered with Dr. Andrew Trapp and *Intrare* (a social impact startup in Mexico City) to improve fairness and performance in AI-based job-matching systems. Boosted algorithm performance by implementing asynchronous approach by batching API calls and refining semantic similarity score to handle candidate-job data more efficiently.
- Designed & executed 6 AI bias experiments by systematically removing demographic signals (e.g., age, gender, nationality), analyzing disparities using model residuals.
- *Recent:* Built and integrated AI to the existing [SWAP hub](#) (a resource-sharing tool for non-profit organizations), to improve scalability by identifying potential unseen matches based on previous exchanges, to suggest additional needs based on primary needs, and improve user experience among NPOs for a smooth barter system.

Research Assistant | *Legendary Legacies, WPI, Worcester, USA*   **| *March 2024 – June 2024***
- Led a graduate research team, working closely with the Dean of Business School and Legendary Legacies to analyze the economic and social impacts of incarceration at local and national levels. I identified key socioeconomic indicators with crime and incarceration patterns, generated insights for policy, pre-trial diversion, and reentry investment strategies.
- Extension (by myself): Independently built and integrated a live, interactive dashboard on the organization's [website](#), streamlining access to key incarceration insights and metrics, while enhancing strategic planning.
- Designed and developed an interactive reentry simulation featuring real-world scenarios, now under consideration for use in prison rehabilitation programs to help returning citizens build readiness and ease their transition.

PUBLICATIONS:
Humans, Machine Learning, and Language Models in Union: A Cognitive Study. [Marimuthu et al.,](#) **ACM SIGMOD - HILDA '25**

HONORS & AWARDS:
- **Best GQP Team - Gold Winner** | GQP-Discern Health | Dec 2024 | & **KIP Fellowship** | May 2024 | Worcester
- **Gold Medalist** | Achieved Highest Academic Standing in my Department | Dec 2023 | Chennai
- **TCS National QT Topper** | Secured a position among Top 10% in the country | Dec 2020 | Chennai
- **Dean's List [2017-18] & [2018-19]** | Aug 2018-19 | & **Runner Up** | Project Day 2020 | Jan 2020 | Chennai

LANGUAGES: English | Tamil | German (A1)

VOLUNTEERING: Mentor at WPI (Worcester, MA), Class President at Anna University (UG), Officer of Youth Red Cross Club and Member of Rotaract Club (Chennai, India)