RICHARD LIU

SENIOR FULL-STACK AI SOFTWARE ENGINEER

liur4598@gmail.com San Francisco, CA, 94102 +12148947710

SUMMARY

Senior Full Stack AI Software Engineer with 10+ years of experience building scalable, intelligent systems across healthcare, video, and enterprise SaaS. Proficient in TensorFlow, PyTorch, and cloud-native infrastructure. Strong analytical mindset with a proven track record of improving system performance and user outcomes through end-to-end ML pipelines and robust full-stack architecture. Quick learner, adaptable to fast-paced and distributed teams.

TECHNICAL SKILLS

- **Languages:** Python, JavaScript, TypeScript, C++, Java, Go, Rust, PHP, C#, Ruby
- **ML/AI:** TensorFlow, PyTorch, Keras, Hugging Face, MLflow, spaCy, scikit-learn, OpenCV, NLTK
- **Data & ETL:** Pandas, NumPy, Polars, Spark, Hadoop, Airflow, dbt, Snowflake, Databricks
- **Web & Frameworks:** React, Vue.js, Django, Flask, Ruby on Rails, Node.js, .NET
- **Cloud & DevOps:** AWS (EC2, S3, Lambda), GCP, Azure, Docker, Kubernetes, Terraform, CI/CD, OpenStack
- **Databases:** MongoDB, PostgreSQL, MySQL, SQL Server, NoSQL, RDBMS
- **Monitoring & Security:** Prometheus, Grafana, Apache/Nginx, SSL, Firewalls, OAuth
- **Tools:** Git, GitHub, GitLab, Selenium, Tableau, MATLAB, Chrome DevTools

PROFESSIONAL EXPERIENCE

Medrio , https://medrio.com **San Francisco, California**

Senior Full Stack AI Software Engineer **Dec 2021 - Jun 2025**

Built a heart condition detection system that spots problems with over 94% accuracy, slashing missed cases, and lifting patient care. Built secure, patient-facing apps with modern frameworks to streamline care coordination and medical record access.

Accomplishments:

- Built a heart condition detection system that achieves 94.27% accuracy; it records heart sounds with a simple stethoscope and analyzes the clips in Keras and TensorFlow.
- Cleaned the audio and boosted weak signals in MATLAB, cutting noise by roughly 30%, and giving the model clearer data to learn from.
- Trained deep neural nets on the cleaned clips, which raised accuracy and cut false positives by 20%.
- Drove another 15% lift by pairing those networks with SVM, KNN, and trees, then tuning them on over-sampled data through grid search.
- Leveraged Databricks for distributed data processing and collaborative development, reducing data pipeline latency, and accelerating iteration speed by approximately 40% in the ML lifecycle.
- Designed databases to store application data using MongoDB technologies.
- Built scalable REST APIs in Ruby on Rails, enabling integration with external EHR systems, and secure patient authentication.
- Integrated Twilio and Stripe into the Rails backend, supporting patient notifications and payments.
- Contributed to multi-tenant SaaS architecture, ensuring secure isolation, role-based access, and performance at scale.
- Used ReactJS to include a dashboard, friendly user interfaces and patient reports.
- Developed responsive user interfaces using Vue.js, improving load performance and accessibility scores by over 25%.
- Expanded reusable front-end components for appointment scheduling and messaging, reducing duplication, and improving development speed.
- Added RSpec tests and Cypress end-to-end scripts, increasing test coverage to 92%.

- Worked in Agile and Scrum environments, leading and contributing to sprint planning, daily stand-ups, retrospectives, and backlog grooming.
- Implemented system monitoring and alerts with Prometheus, Grafana, improving uptime and operational insight.

Mux, https://www.mux.com/ **San Francisco, CA**

Image Processing Software Engineer **Oct 2017 - Nov 2021**

Built scalable video APIs with Go, Python, and React, cutting video errors by 30%, and streamlining billions of minutes of delivery across Mux.

Accomplishments:

- Conferred with project managers and other stakeholders to fully understand software design specifications and plan optimal development approaches.
- Coordinated installation of software systems and collaborated with user experience team on design and implementation of new features.
- Adapted computer vision pipelines for video diagnostics using TensorFlow and OpenCV, reducing playback issue detection time by 30% across millions of streams.
- Built real-time visual quality classifiers and anomaly detectors, improving platform reliability, and cutting video incident reports by 40%.
- Integrated AI-powered scene analysis into Mux Data, enabling smarter playback tracking, and boosting client retention for high-traffic partners.
- Optimized deep learning inference workflows for GPU/CPU deployment, cutting latency by 22%, and supporting 10× growth in concurrent stream analysis.
- Enforced scalable video streaming solutions for high-demand applications.
- Utilized established design patterns to expedite novel software creation and support consistent performance results.
- Combined root-level authentication and authorization technologies with ongoing system design to harden finished solutions.
- Leveraged Agile methodologies to move development lifecycle rapidly through initial prototyping to enterprise-quality testing and final implementation.

Wizeline, https://www.wizeline.com/ **San Francisco, CA**

Junior Full Stack AI Engineer **Nov 2015 - Sep 2017**

Built ML models for internal tools (SmartLead), which boosted sales team efficiency through predictive lead scoring.

Accomplishments:

- Followed industry innovations and emerging trends through scientific articles, conference papers or self-directed research.
- Boosted machine learning techniques such as supervised and unsupervised learning, natural language processing, image recognition and sentiment analysis.
- Created surveys, opinion polls and assessment tools to collect data.
- Contributed to internal open-source ML utilities, adding unit tests and speeding up data preprocessing by 3x.
- Built a document classification pipeline using scikit-learn and spaCy, improving tagging accuracy by 30% for a major client’s knowledge base.
- Trained a sentiment analysis model for user feedback systems, lifting customer satisfaction metrics by 12% after integration.
- Built prototypes of automated decision-making systems using reinforcement learning.
- Containerized ML workflows with Docker, deployed to AWS EC2, cutting onboarding time for data scientists by over 50%.
- Updated an automated model evaluation dashboard in .NET, reducing manual QA work by 40%.
- Enhanced software for embedded systems, coding solutions for both new installations and in-situ hardware.
- Tested, validated and reformulated models to foster accurate prediction of outcomes.
- Monitored production environment and identified areas for improvement in AI performance.
- Provided technical support and troubleshooting assistance related to deployed AI solutions.

Sentry, https://sentry.io/ **San Francisco, CA**

Junior Full Stack Developer **Jan 2013 - Oct 2015**

Built core features for Sentry's early error monitoring platform using Django and JavaScript, improving issue tracking speed by 20%, and helping scale to 10× more daily error events as the user base grew.

Accomplishments:

- Expanded full-stack features with Python (Django) and JavaScript/jQuery, later migrating to React, supporting a 10x increase in daily error event volume.
- Built and maintained internal dashboards and tools that cut issue resolution time by 35%, and improved engineering visibility.
- Translated concepts into user flows, wireframes, mockups and prototypes to promote positive intuitive designs, site interactions and user experiences.
- Deployed applications to cloud platforms such as AWS or Azure, ensuring high availability and scalability.
- Assisted with production deployments and live issue triage, reducing error processing time by 20% through async task handling.
- Wrote automated test cases with unit tests and Selenium, increasing test coverage by 50%, and reducing regression incidents during rollouts.
- Utilized debugging tools such as Chrome DevTools to troubleshoot any issues that arise during development cycle.
- Performed server maintenance duties such as configuring Apache servers or setting up SSL certificates.
- Created and applied firewalls, encryption strategies and other critical security measures.

EDUCATION

Saint Francis University **Apr 2006 - Mar 2012**

Master of Computer Science

- Completed graduate coursework in Computer Architecture, Operating Systems, Advanced Algorithms and Embedded Systems.
- Graduated as a High-Performing Fellow, recognized for excellence in systems design and engineering rigor.
- Thesis: "Optimization of Computational Models for Resource-Constrained Systems".
- 3.7 GPA

PERSONALITY

- Strong analytical skills with a problem-solving mindset.
- Strong quantifiable achievements.
- Built robust APIs and integrated them with machine learning models for real-time data insights.
- Good collaboration across distributed teams and thrive in fast-paced, iterative development cycles.
- Quick learner, always eager to embrace new challenges and technologies.