Robert E. Taylor

EdgeAI Architect

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Hands-on engineering leader/architect of secure, scalable edge AI for global clients in high-stakes, mission-critical environments.

Inventor, system architect and developer with 15+ years of experience building secure, scalable edge-to-cloud systems. Skilled in edge AI, trad ML, SaaS, PaaS, IaaS (AWS), and applied cryptography. Delivered smart tech for global firms like Amazon, Netflix, and Microsoft. Strong teamwork, client service, and system design. Able to turn complex ideas into clear, executable plans. Deep experience with streaming, consumer tech, device security, and digital rights.

Technical Proficiencies

Machine Learning & Data	edge AI | GPTs | RAG | MCP | GenAI Model APIs | Computational Notebooks | NumPy | Pandas | TensorFlow | PyTorch | Prophet | SQL | Kafka | Flink | Zeppelin | Aurora
Programming & Development	Typescript | React/RN/Next.js | Javascript/Node | Kotlin | Java | Swift | Rust | C/C++ | Python | Agile | Cursor | VS Code | Github | Gitlab | CI/CD | Jira | Confluence
AWS Cloud Services	Bedrock | IoT | S3 | DynamoDB | RDS | EC2 | Lambda | API Gateway | Route 53 | IAM | Amplify | SNS | SQS
Security & Authentication	HSMs | TEEs | DRM | RSA | AES | SSL/TLS | PKI | X.509 | Secure Boot | CIAM | SAML | JWT | Okta | OAuth 2.0 | Cognito
Hardware & Embedded Systems	RTOS | Zephyr | BLE | JTAG | ICE | Logic Analyzers | Oscilloscopes | Bootloader/Firmware Bring-up | Assembler

Career Experience

Extropic Systems, LLC — **Nov 2024 – present**
Founder/President

Architecting end-to-end Edge AI solutions, from sub-milliwatt TinyML to hybrid edge-cloud RAG pipelines.

- TinyML Pipelines – Design and deployment of TensorFlow Lite Micro models on ultra-low-power microcontrollers for real-time sensor anomaly detection
- Federated & Continual Learning – Architect privacy-preserving cross-device training frameworks for smartphones, IoT nodes, and single-board computers
- Edge AI Benchmarking – Developing automated tooling to evaluate latency, throughput, and power across diverse hardware (iOS, Android, WASM, microcontrollers)
- Datacasting & Emergency Alerts – Datacasting pipelines (e.g., ATSC) for all-hazards alerting

Nielsen — **Apr 2016 – Oct 2024**
Engineering Leader & Architect

Led design and rollout of audience tracking tools. Built machine learning, streaming data, and cloud-based systems. Created software to track media exposure using cloud and edge tech. Key projects included HDMI metadata tagging, detecting on-demand content, streaming catalog access via proxies, and audio-based media ID. Built software meters for smart TVs and secure bulk media uploads.

- Developed and deployed machine learning models for time-series trend-break detection, identifying anomalies and outages across 80,000+ audience metering data sources.
- Earned U.S. Patent (US-11410680-B2) for HDMI metadata tagging to improve source tracking.
- Patent pending (US-20250209475-A1) for software-only metering app for smart TVs.
- Patent pending (US-20250119615-A1) for auto-tagging non-linear media to cut manual work.
- Trained ML models to ID media from audio compression traits.

Qterics **Mar 2006 – Mar 2016**
Principal Architect

Led tech for connected TV services. Built and managed full-stack systems for global CE clients. Partnered with top firms on device security and media key delivery. Handled client support and helped solve complex system issues. Co-developed secure login flows with major streaming services.

- Pioneered connected TV update and device-unique provisioning system for streaming media player credentials delivered to over 50M connected TVs and other CE devices.
- Awarded U.S. patent (US-9240984-B2) for delivering device-unique streaming media player credentials.
- Worked with OEMs & ODMs to add secure media tools to devices.
- Cut support times with better tools and client outreach.
- Boosted product use via industry ties (MPAA, CE vendors).

Additional Experience

Senior Technical Lead - Analog Devices (NYSE: ADI), Norwood MA
Led projects for H.264 decoders on Blackfin DSPs used by Microsoft and others. Handled client needs and managed dev teams. Solved data flow and DMA issues. Took part in CPU and compiler planning.

Software Architect and Team Manager – Rachis, Maynard MA
Ran Set Top Box builds like Motorola DCT5100 with MSTV and TV Guide. Worked with teams at Microsoft, Broadcom, and others. Managed all stages of dev and system hookup.

Director of Software Development | Principal Software Engineer - Voxware (NASDAQ:VOXW), Cambridge MA
Built speech tools with 98%+ accuracy used by UPS, FedEx, and USPS. Wrote RTOS for speech recognition hw in critical use environments. Led client work and dev teams for global rollouts.

Education

Bachelor's Degree in Mathematics, Computer Science, & Pre Medicine, Hampshire College

Certifications

Designing and Building AI Products & Services, MIT

Additional Licenses

National Registry of Emergency Medical Technicians - Basic
NFPA Firefighter Level II