Michael Poplin

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Summary

Systems engineer and technical leader with 15+ years of experience architecting scalable solutions across healthcare technology, web infrastructure, and distributed systems—including 10 years in cannabis technology spanning compliance integrations, seed-to-sale systems, and multi-state retail operations. Completing an accelerated M.S. in Industrial & Systems Engineering at Montana State University with published research in human factors, neurotechnology, and computational methods (IEEE, IISE, HFES). Proven track record of cross-functional leadership, managing development teams, shipping production systems, and translating complex technical problems into measurable business outcomes.

Technical Expertise

Software Engineering & Architecture
Building scalable platforms and leading technical teams through complex system design decisions
- Platform architecture and system design (microservices, event-driven, serverless)
- Full-stack development (Next.js, React, Node.js, Python, PHP)
- API design and third-party system integration
- Database architecture and optimization (PostgreSQL, MySQL)
- Mobile and cross-platform development

Data, Analytics, & ML
Extracting insights from complex datasets and building intelligent systems
- Machine learning pipelines (PyTorch, scikit-learn)
- Computer vision and media processing (MediaPipe, OpenCV)
- Time-frequency analysis and wavelet transforms
- ETL pipeline development and data modeling
- Marketing attribution and revenue optimization

DevOps & Infrastructure
Managing production systems and deployment pipelines at scale
- Cloud platforms (AWS, Vercel)
- Containerization and deployment (Docker, Nginx, serverless)
- CI/CD pipeline design and implementation (CircleCI, GitHub Actions)
- Linux systems administration

Research & Leadership
Bridging technical execution with strategic decision-making
- Technical due diligence and feasibility assessment
- Biomedical instrumentation and EEG/ERP analysis
- Healthcare systems optimization
- Agile/Scrum project management
- Technical writing and conference presentation

Professional Experience

Systems Engineer | The Cannabist Company | Remote

April 2022 - Present

Technical lead for web platform serving publicly traded multi-state cannabis operator.

- Architecting and deploying serverless, statically-built CMS integration serving multiple brand properties
- Led team of 3 developers through full project lifecycle from requirements gathering to production deployment
- Leading third-party vendor integrations from technical evaluation through production implementation
- Setting engineering priorities with product/marketing leadership

Research Engineer | Montana State University BioReD Hub | Bozeman, MT

August 2024 - Present

Research engineer for Montana State University's Biomedical Innovation for Research and Development Hub (BioReD Hub), an interdisciplinary center advancing life-saving technologies through engineering, neuroscience, nursing, and computer science collaboration.

- Contributing to statewide trauma network proposal addressing Montana's rural healthcare access challenges (competing for Department of Health and Human Services $50B rural health funding)
- Prototyping EMS coordination platform with real-time hospital capacity tracking and satellite communications
- Conducting statistical analysis and data processing for EEG/ERP neuroscience research on language impairment in autism and ADHD
- Developing Python-based automated speech segmentation system for EEG/ERP workflows; submitted to IEEE ACDSA 2026; open-source release planned
- Developing interactive game environment with child-friendly interface for behavioral and biometric data collection
- Contributing to post-sternotomy recovery protocol optimization research in partnership with Billings Clinic
- Authoring grant proposals for healthcare systems optimization and biomedical research initiatives
- Presenting interdisciplinary research findings at national conferences including Institute of Industrial and Systems Engineers (IISE) Annual Conference with live technical Q&A sessions

Senior Developer / Technical Lead | The Green Solution | Denver, CO

July 2016 - April 2022

Lead developer for what was then Colorado's largest independent cannabis retailer.

- Led distributed development team including code reviews, technical mentorship, and hiring
- Designed and implemented TGSColorado.com flagship web property and in-store kiosk experience
- Core developer on Motaworks custom Point-of-Sale system; built real-time chat functionality, hardware integrations, and standalone kiosk deployments from scratch
- Co-architected RabbitMQ-based microservices platform enabling distributed system scalability
- Coordinated cross-functional technical support spanning compliance (METRC), ERP integrations (NAV Dynamics), and retail operations for inventory and product catalog management
- Partnered with executive team and department leaders to gather requirements and deliver high-impact solutions

Application Engineer | Gaia | Boulder, CO

July 2013 - July 2016

Full-stack developer on streaming media platform serving global audience.

- Led development of AppleTV streaming application from concept to production
- Built features and integrations for web platform using PHP and JavaScript
- Collaborated with product team on user experience optimization

Earlier Roles

Additional experience in web development: University of Kentucky, Able Engine, and eLink Design (2010-2013)

Education

Montana State University | Bozeman, MT
Master of Science, Industrial & Systems Engineering (In Progress; Expected December 2026)
Focus: Healthcare systems optimization, human factors and ergonomics, statistical modeling
Research Focus: Rural healthcare systems, biomedical instrumentation, neurotechnology

Montana State University | Bozeman, MT
Bachelor of Science, Industrial & Management Systems Engineering
Graduated with Honors | GPA: 3.64
Tau Beta Pi Engineering Honor Society | TBP Scholarship Recipient | Tau Beta Pi Treasurer
Founded MSU chapter, Society of Manufacturing Engineers (SME)

Publications

Lead Author: Poplin, M., Ma, J., Aviles Zuniga, T., Modyanova, N., Johnson, E. A., & McCrory, B. (2025). "Using Electroencephalography to Understand Learning Engagement with User-Centered Human-Computer Interaction in a Multimodal Online Learning Environment." *Proceedings of the IISE Annual Conference & Expo 2025*. Paper

Lead Author: Poplin, M., Hughes, M., McCrory, B., & Modyanova, N. "Achieving Sub-Frame Precision Speech Segmentation Through Computational Multimodal Analysis: Bridging Neuroscience Requirements with Engineering Solutions." *IEEE Artificial Intelligence, Computer, Data Sciences and Applications (ACDSA) 2026 (Pre-publication)*. Paper

Lead Author: Poplin, M., Tafelmeyer, J., Riemann, L.A., Chamberlin, M., & McCrory, B. (2026). "Keep your move in the tube: An evaluation of longitudinal patient outcomes and readiness for change amongst staff." *International Symposium on Human Factors and Ergonomics in Health Care, New York, NY.* (Abstract accepted).