Daniel Beckman

Arvada, CO | djbeckman42+JA@gmail.com | (720) 278-3948

GitHub: <https://github.com/DanielJBeckman>

Website: <https://danieljbeckman.github.io/>

# SUMMARY

AI/ML Engineer and backend platform developer with a Master’s in Computer Science and 8+ years of programming experience. Specialized in computer vision, edge AI, LiDAR, stereo vision, and big data systems. Lead engineer on numerous applied AI prototypes at the Hydrologic Applied Innovation Lab (HAIL) and currently supporting large-scale backend data pipelines in the USGS Enterprise Technology Office. Daily work in Apache Airflow, CI/CD (GitLab), and Kubernetes-based infrastructure. Strong focus on real-world ML deployment, infrastructure-aware AI, and public science technology.

# TECHNICAL SKILLS

Languages: Python, C++, Swift, C#, Objective-C, SQL  
ML/CV: TensorFlow, Keras, OpenCV2, U-Net, Stereo Vision, LiDAR, Point Clouds, Edge AI  
Data Engineering: Apache Airflow, GitLab CI/CD, JSON, Docker, Postgres, NoSQL  
Infrastructure: Kubernetes (KubeExecutor), ArgoCD, AWS (S3, EC2), RHOS  
Mobile/XR: iOS (ARKit, Swift), Unity Shader Graph, Mixed Reality  
Other: REST APIs (learning FastAPI), RBAC (working knowledge)

# EXPERIENCE

## USGS – Platform Engineer

Enterprise Technology Office (ETO) | 2024–Present

- Maintain and refine production Apache Airflow DAGs across Kubernetes-native (KubeExecutor) and legacy Docker-on-EKS environments.  
- Developed the internal Auth Manager to manage secure token and credential access across DAGs.  
- Improvements on dynamic mapping data batching for national-scale ETF big data pipelines.  
- Authored internal documentation for ArgoCD deployments (Dev, QA, Prod).  
- Daily GitLab-based CI/CD collaboration in a secure, software-engineering-heavy environment.  
- Source code cannot be shared due to federal data restrictions, but all work can be discussed in detail.

## USGS – AI Engineer & Prototyping Lead

Hydrologic Applied Innovation Lab (HAIL) | 2020–2024

Sole or lead developer on multiple applied AI and environmental sensing MVPs for edge inference, mobile CV, satellite telemetry, and public-facing XR.

- Cambot: Used Eigenfaces-style algorithm on grayscale river images for short-term stage prediction (10,000+ image dataset).

- Gage-Cam: Built U-Net model trained on synthetic data to read staff plates and estimate river stage. Fully integrated into a solar-powered, Raspberry Pi-based field system with edge/cloud inference.

- Stereocam: Designed stereo vision depth system using OpenCV2 + synchronized Raspberry Pi HQ cameras for ice jam thickness estimation.

- Cuffee Beach XR: Interactive VR experience in Unity simulating sea-level rise on a First Nations site using 3D audio, Shader Graph water, and animated terrain.

- iOS Mixed Reality Apps: Built in Swift. One app visualized floods in AR; the other mapped high water marks using LiDAR and GPS.

- RockBLOCK Telemeter: Low-power image transmission system using 8-bit hex-encoded pixel values over satellite SBD via Raspberry Pi A+.

- Point Cloud Aligner: Experimental Python tool for blind 3D point cloud alignment.

- Streamflow Edge Deployment: Built the compute, power, and telemetry hardware to run a pre-trained streamflow AI model on Raspberry Pi.

- Bronx Zoo iPad App: Delivered a live kiosk application displaying water quality data from the Bronx and Harlem Rivers.

## USGS – Software Developer

Web Informatics and Mapping | 2018–2020

- Rebuilt a unified hazardous algae bloom (HAB) database using Python, replacing an unstable R implementation.  
- Engineered a clean backend interface and data ingestion logic for environmental health applications.  
- Contributed to the Short-Term Network backend using C#, supporting real-time water data infrastructure.

# EDUCATION

M.S. in Computer Science  
University of Colorado, Denver/Boulder – GPA: 3.55

Focus: Machine Learning, Deep Learning, Computer Vision, Reinforcement Learning, XR Technology

B.A. in Ecology & Evolutionary Biology  
University of Colorado, Boulder