

# T. Riley Dawson

rileydawson.com | LinkedIn

## SUMMARY

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Data scientist and software engineer with 10 years of experience building and operationalizing ML-driven analytics, from time-series and computer vision models to platforms adopted by research teams at three institutions and run independently by front-line staff. MEng and MBA. Leads small teams and grant-funded projects (primary author on \$350K in funded grants) and communicates findings to non-technical decision-makers. Will complete the PMP within 12 months of hire.

## SKILLS

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**Machine Learning & AI:** Time-series modelling (LSTMs, sequence segmentation), XGBoost, neural networks (JAX/Flax), computer vision (YOLO, MediaPipe, depth-sensor body tracking), multi-modal data fusion, model evaluation and baselining, local LLM hosting (LM Studio), PEFT/LoRA fine-tuning

**Programming & Data:** Python, R, SQL (PostgreSQL), MATLAB, C#, JavaScript, Rust, Java

**Engineering & Deployment:** Docker, Linux, CI/CD (GitHub Actions), cloud deployment (DigitalOcean, Vercel, Supabase), software architecture, data retention strategy

**Leadership:** Team and grant-project leadership, hiring, mentoring and staff training, grant writing

**Languages:** English, French (B1-B2, working toward C1), Japanese (beginner; JLPT N5)

## EXPERIENCE

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### Senior Systems Architect & AI Integration Lead | ZerOne Inc.

July 2025 - Present

- Built Shot Coach, a depth-camera pipeline that segments slap shots into phases and scores movement against benchmarks designed with professional shot coaches. Switched from MediaPipe to Azure Kinect body tracking after MediaPipe's jitter and identity swaps proved unreliable.
- Operationalized it for front-line staff: 349 assessments since April 2026 as part of the facility's membership upgrade package. Ran the first two months, then trained six staff to run it independently.
- Primary author on a \$200K, two-year Alberta Innovates Digital4Health grant benchmarking Kinetisense against Theia3D for telehealth rehab (~30 of 50 participants enrolled). Lead a peer and a student intern; own the schedule, risk register, and analysis.
- Led AI adoption (Amii adoption program, LLM vendor selection with HR, local models), set the data-retention policy, and am overseeing the hire of a direct report.

Python, MATLAB, Docker, Azure Kinect Body Tracking SDK, MediaPipe, LM Studio

### Co-founder & CTO | Gaze and Movement Analysis Inc.

July 2021 - Present

- Co-founded an AI analytics spin-off for multi-modal human performance data and set technical strategy for systems built on GaMA; the University of New Brunswick and the University of Houston have requested licences.
- Primary author on a \$120K Mitacs Entrepreneur grant.

MATLAB, Python, C#, Microsoft HoloLens, Theia Markerless Motion Capture

### Fractional CTO | blueBell Connect

April 2024 - September 2026

- Took the Connect platform from MVP to production (cloud architecture, CI/CD, PostgreSQL), hiring and managing the contractor who built it.

.NET, PostgreSQL, DigitalOcean, Docker, GitHub Actions

### Research Software Engineer | BLINC Lab, University of Alberta

October 2016 - July 2025

- Built Gaze and Movement Assessment (GaMA), replacing hand-labelled eye-tracking data and single-joint motion profiles with automated multi-modal analysis. The project began with DARPA funding.
- Adopted by teams at the University of Alberta, University of Auckland, and Shirley Ryan AbilityLab; supported at least seven peer-reviewed studies, including one in *JAMA Network Open*.

- Processed ~6,000 trials at 120 Hz or higher, including 500+ from prosthesis users, under research-ethics protocols (de-identification, secured storage).
- Led the three-person GaMA development team, supervised two summer students, mentored graduate students, and was primary author on a \$30K Campus Alberta Neuroscience grant.

MATLAB, Python, C#, Unity

## Software Engineer in Training | Diesel Tech Industries

June 2015 - October 2016

- Built a web-based employee tracking app from requirements through deployment (AngularJS, PHP, SQL).

## EDUCATION

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### Master of Engineering, Software Engineering and Intelligent Systems | University of Alberta | 2019-2024

Dual degree with the MBA, completed part-time while working full-time. Mitacs Accelerate Entrepreneur.

- Capstone: benchmarked LSTMs against MLP baselines (JAX/Flax) to segment motion-capture time series from 1,371 labelled trials across four sites; best LSTM reached 93.0% frame-level accuracy vs. 89.4% for the best MLP.

### Master of Business Administration | University of Alberta | 2019-2024

Triffo Award for Innovation; VCIC Venture Capital Competition, 2nd place; Creative Destruction Lab founder and student advisor.

### Summer Session in Asian Studies | 上智大学 Sophia University, Tokyo | 2014

### Bachelor of Science in Engineering, Software Option | University of Alberta | 2008-2014

Stowkowy Scholarship in Engineering.

## SELECTED PROJECTS

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- **City of Edmonton Open Data Portal (2016-2024):** XGBoost property-assessment model on the City's housing data (MEng coursework); picnic.site web app built at the Edmonton Public Library's Open Data Day.
- **ISARC Constructing Futures Hackathon, 1st place (2019):** added cloud image classification to a VR control system I built for the SoftBank NAO platform.

## TEACHING & COMMUNITY

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- **NorQuest College, Instructor & Curriculum Designer (2025-2026):** designed and taught three week-long robotics camps that make engineering concepts hands-on for junior-high students; led two instructors, both returning.
- **Volunteer President, Edmonton-Glenora Constituency Association (2024 - Present):** chair executive meetings and lead governance, including difficult conflict issues.
- **Invited Panelist, Upper Bound Community Session (May 2024):** interdisciplinary panel on AI-enabled neurotechnology.
- **Volunteer Developer, Edmonton Catholic Schools (2020):** co-developed an interface for teachers to direct NAO robots' speech and movement during story time and dialogue practice with students receiving social-communication support.

## SELECT PUBLICATIONS

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**Dawson, R., Boser, Q., Valevicius, A., et al. (2024).** Laying the foundations for real-time auto-segmentation of time series gaze and movement data. CAPnet Satellite Symposium (poster).

Stone, S., Boser, Q., **Dawson, T.R., et al. (2022).** Generating accurate 3D gaze vectors using synchronized eye tracking and motion capture. *Behavior Research Methods*.

Stone, S., Boser, Q., **Dawson, T.R., et al. (2021).** Sub-centimeter 3D gaze vector on real-world tasks: an investigation of eye and motion capture calibration routines. ACM ETRA, Stuttgart.

Cuthbertson, L., Kearney, A., **Dawson, T.R., et al. (2019).** Women, politics and Twitter: Using machine learning to change the discourse. NeurIPS 2019 Joint Workshop on AI for Social Good.