Alexander Britton

Applied engineer experienced in translating biomechanics and performance data into actionable coaching interventions. Builds reproducible analysis pipelines, intuitive coach-facing reports, and tools that drive on-field development. Strong quantitative background (Python, statistics, experimental design) with hands-on collaboration across coaching, sports science, and R&D.

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Profiles

abritton2002

alexbbritton22

Experience

Driveline Baseball — **Aug 2025 - Present**
Forward Deployed Engineer — Tampa, FL

- Primary on-site R&D representative partnering with coaches and coordinators to interpret biomechanics and performance data into clear, actionable player feedback.
- Delivered coach-facing dashboards and reports integrating motion capture, EMG, and other session level data to guide individualized plans.
- Ran evaluations of training interventions, quantified outcomes, and iterated program design with cross-departmental staff.
- Created educational resources and automated complex workflows that improved efficiency of the company and allowed for easier onboarding of employees.

Driveline Baseball — **June 2024 - Aug 2025**
Sports Science Engineer Lead — Tampa, FL

- Iterated on and maintained biomechanics analysis pipelines and data models spanning motion capture, EMG, and wearable sensors
- Introduced EMG testing into assessments, managing full lifecycle from research and validation to production deployment and staff training.
- Developed AI-assisted automations (e.g., MCP server for database querying, LLM-powered data access) that reduced analysis time and improved accessibility for non-technical users.
- Coordinated cross-functional research and technical projects, aligning R&D deliverables with on-floor training priorities and timelines.

Projects

EMG Data Collection/Analysis Pipeline
https://github.com/abritton2002/EMG_Processor

End-to-end pipeline for Delsys Trigno EMG data: device integration, throw/event detection, signal processing, and batch storage to MySQL/HeidiSQL. Supports coach-facing reporting and longitudinal analysis.

Bat Path Visuals

Integrated full-signal bat path visuals into motion capture reports to provide coaching staff with clear, baseball-relevant context (Savant-like) for swing path evaluation and communication.

3D Spin Components Decomposition
https://github.com/abritton2002/FL-Kressy

Physics-informed scripts leveraging Alan Nathan's work to derive 3D spin components from tracking data, enabling more accurate break predictions and clear spin visualizations for player development.

Skills

Applied Biomechanics & Sensors
Motion capture, EMG, force plates, wearable sensors; signal processing; biomechanics reporting for coaching contexts.
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Quantitative Analysis & Experimentation
Python, SQL, PHP, statistics, study design, outcome evaluation, visualization and coach-facing communication.
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Data Systems & ML
Pipelines, databases (MariaDB/MySQL), API integrations; model deployment for event detection and analysis.
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AI-Assisted Analysis & Automation
LLM tools, MCP servers, embeddings/RAG; accelerates analysis and reduces operational burden.
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Coaching Collaboration & Communication
Coach-facing delivery, cross-functional teamwork, on-floor support, education and enablement.
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Education

Embry-Riddle Aeronautical University — **August 2020 - May 2024**
Mechanical Engineering — Bachelor's Degree
3.92 GPA (Summa Cum Laude)

Publications

Kinematic Analysis of a Four-Bar Linkage for Forward Stroke Motion — **March 2025**
American Journal of Biomedical Science and Research
Link