

# Davis Balgley

## Software Development – Mathematics – Algorithm Development

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### SENIOR SOFTWARE ENGINEER

Results oriented individual experienced in analysis, design, development, testing, and implementation of applications seeking a Software position that would allow me to apply my skillset and expertise in Python, Biotechnology, and product delivery. Proficient in a variety of platforms, languages, and toolkits and able to gain deep understanding of technical systems and subject matter. Accustomed to working on tight deadlines while maintaining project scope and quality. Professional experience in algorithm design and standup of Artificial Intelligence and Machine Learning feature sets. Demonstrated proficiency in proposal writing, group presentations, onboarding, and knowledge transfer. Works well in both self-directed and highly structured environments.

### AREAS OF EXPERTISE

**Software Languages:** Python, JAVA, R, MATLAB, C++, SQL, Perl, Bash, C

**Software Development Methodologies:** Agile, Scrum, Kanban, Atlassian

**Algorithm Specialties:** Artificial Intelligence, Machine Learning, Bioinformatics, Natural Language Processing, Computer Graphics

**Platforms:** Windows, Linux (RedHat, Ubuntu), Unix (OSX)

**Applications/Libraries:** Visual Studio Suite, Pycharm, spaCy, nltk, TensorFlow, R Studio, SublimeText2, VIM, OpenGL, Microsoft Office

### PROFESSIONAL EXPERIENCE



ARCHERDX, INC./INVITAE CORP./INTEGRATED DNA TECHNOLOGIES, INC.

Boulder, Colorado

*From Genetics, Health.*

SEP 2020 TO JUL 2023 (2YR. 10 MO.)

**Bioinformatics Software Engineer III – Technical Lead (Python, Docker, AWS)** – A cross-functional team with the goal of bringing personalized cancer monitoring and diagnostics to the forefront using novel chemistry and advanced algorithms.

Adapted Invitae/Archer Software Engineering practices to a new organization after acquisition by Integrated DNA Technologies, Inc. Assisted in transition of leadership and technology to IDT through documentation of processes and strategy planning. Contributed to the Bioinformatics Pipeline Team with a focus on sustainment, architecture innovation, and performance optimizations.

- Defined and executed a project to improve variant calling sensitivity
- Integrated chosen cutting-edge variant caller into existing pipeline and developed new test cases and monitoring processes to ensure data parity or improvement in stated areas of accuracy of calls, resource utilization, and runtime

Recruited to lead an at-risk program to ensure on-time delivery of software product while minimizing employee attrition. Responsibilities included technical leadership, project management, and people leadership to a medium-sized bioinformatics software engineering team. Through careful product refinement, feature and defect prioritization, and risk abatement, the program's major release occurred on-time and the software has supported >\$10mil in revenue for the organization in FY22.

- Acted as a subject matter expert and offered advisement on all software aspects of the project to stakeholders and leadership
- Fostered information flow while cutting unnecessary meetings from engineering team's schedules
- Interfaced directly with senior and executive management to present timelines, requirements, risks, resourcing, and key milestones
- Oversaw release of the software, collecting information on status and readiness to launch
- Introduced new programs including bug bounties and hackathons to rebuild trust, facilitate a teamwork culture, and promote retention in the software engineering organization



COLLECTIVE INTELLIGENCE, INC.

Lakewood, Colorado

*Crowdsource Better Projects.*

JUN 2019 TO JUL 2020 (1 YR. 1 MO.)

**SOFTWARE ENGINEER (Python Flask, VueJS, PostgreSQL)** – SaaS startup providing 'future of work' collaboration tools leveraging internal crowd sourced content to improve the product marketing process. Funded by General Catalyst and private Venture Capital.

Part of a two-engineer team supporting feature planning and implementation of code on both backend and frontend. Specialized areas of responsibility included business logic development and novel algorithms for user retention, engagement, and gamification. Led research efforts into application of Machine Learning Algorithms and Natural Language Processing techniques.

- Designed algorithms for scoring user text feedback to present data in a refined way to content creators
- Implemented new code from scratch for a new feedback data-driven method of creating content such as blog posts or list articles

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- Implemented spaCy Natural Language Processing for analysis and scoring for data insights and LLM training
- Assisted in migrating application to new VueJS frontend framework, which substantially reduced the complexity of the codebase while massively increasing the functionality of the product



MIT LINCOLN LABORATORY  
Colorado Springs, Colorado & Lexington, Massachusetts  
*Technology in Support of National Security.*

FEB 2017 TO MAY 2019 (2 YRS. 4 MO.)

**SOFTWARE ENGINEER (Java, PostgreSQL, JBoss Fuse ESB, Camel, Apache/AMQ, MATLAB, Deep Learning)** - Tasked with developing image processing software for the Air Force Space Command while working closely with system integrator partners. Developed software tools to extend and update legacy codebases in support of multi-billion-dollar programs critical to national security.

Assigned to a six-person team supporting multiple platforms using a common processing toolkit. Responsibilities included development, defining project scopes and schedules, regular updates to stakeholders, and field support. Served as a point of contact for new development efforts as well as sustainment on legacy platforms.

- Modernized and streamlined methods for feature recognition utilizing convolutional neural networks, with the goal of eliminating the need for such a high level of human intervention to identify features
- Designed and implemented custom astrodynamics algorithms to track and classify objects
- Served as architect for a novel data processing pipeline, which included status and metric info accessible via RESTful DB calls
- Established new processing algorithms for more data-efficient imaging techniques
- Performed rapid-turnaround code development for fine-tuning satellite systems shortly after launch
- Designed and implemented a new image output format which helped bring legacy systems into alignment with new data transmission and reporting standards
- Acted as scrum master for team and interfaced with subject matter experts to drive product design



APPLIED RESEARCH ASSOCIATES, INC.  
Littleton, Colorado & Arlington, Virginia  
*Expanding the realm of possibility.*

AUG 2014 TO FEB 2017 (2 YRS. 7 MO.)

**SOFTWARE ENGINEER (Python, Java, C++, R Statistical, Machine Learning)** - Member of agile development teams with both local and dispersed teammates including subcontractors with classified customers providing individual and team deliverables.

Supported a neuroscience project investigating repetitive mild Traumatic Brain Injury (mTBI) to create a viable protocol/product for the Office of Naval Research and DARPA to deploy in combat theatres. Served as primary point of contact for statistical analysis and software design.

- Instrumental in defining a delineation between injured and uninjured subjects at various levels with respect to mTBI.
- Developed statistical models for in-depth analysis of medical imaging data
- Designed and implemented AI and machine learning algorithms
- Architected database schema for data collection, storage, and analysis

## EDUCATION



**COLORADO SCHOOL OF MINES** – Golden, Colorado 2014

BACHELOR OF SCIENCE, COMPUTER SCIENCE WITH A FOCUS IN APPLIED MATHEMATICS AND BIOMEDICAL ENGINEERING

IT CHAIR, COMMUNITY SERVICE CHAIR: KAPPA SIGMA FRATERNITY

## AWARDS

2017-2018 MIT LINCOLN LABORATORY TEAM AWARD FOR SIGNIFICANT CONTRIBUTIONS TO SPACE SITUATIONAL AWARENESS

## CREDENTIALS

DEPARTMENT OF DEFENSE TOP SECRET INACTIVE 2018