# JACOB HAIMES

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Computational Modeling | Optimization | Data Visualization | Automation

A Computational Modeling and Mechanical Engineering graduate experienced in offering information analysis and delivering value through effective incident and problem management. Analyzes and recognizes data patterns and provides reliable information for accurate decision-making. Looking forward to collaborating with colleagues to solve complex problems and contributing to a robust and value-based organization with a mission to implement sustainable practices and programs.

## RELEVANT PROFICIENCIES

Strategic Analysis | Collaborative Problem Solving | Systems and Processes | Cybersecurity
Algorithm Design & Development | Systems Engineering | Technical Writing | Data Modeling
Qualitative & Quantitative Analysis | Statistical Models | Flow Visualizations | Engineering Research
Test Design and Analysis | Risk Assessment | Machine Learning | Technical Workshops | Genetic Algorithms

## ESSENTIAL SKILLS & STRENGTHS

▪ **Scientific Data Visualization.** High capacity for showcasing information and complexities in approachable, visually pleasing, and intuitive ways by determining the purpose of the data and then choosing the most accessible visualization method to enable understanding and ensure the maximum number of people can engage in the conversation.

▪ **Conscientious Critical Thinking.** Structured and orderly with an emphasis on quality. Applies an objective perspective to gain multiple viewpoints and offer information in an inclusive, non-judgmental manner for a more collaborative approach in the group thinking process. Known for attention to detail, accuracy, and precision while managing significantly diverse projects.

▪ **Simulation and Modeling.** Creates system models for testing and predicting outcomes of various scientific, technical, and business scenarios. Devised a model to approximate the internal process cost based on the size of the organization and growth patterns. Leveraged the data collected and modeled to make smarter, more efficient patient management decisions.

▪ **Optimization and Automation.** Evaluates complex models representing real-life planning and decision support. Experiments with inquiries to uncover data patterns and determine the optimal value of complex problems and equations. Leverages automation to apply solutions, mitigate risk and augment the efficiency of key research, systems, or business processes.

▪ **Stellar Communicator.** Respectful, persuasive, and articulate communicator, quickly and effectively conveying ideas and information in an influential manner. Develops relationships through active listening and creating a sense of connection. Naturally itemizes data and information in detail. Shares using proven procedures, systems, and convincing technical writing.

▪ **Collaboration and Teamwork.** Supportive, loyal, dependable, and able to manage complicated relationships and projects. Values the input and expertise of others and engages subject matter experts when necessary to ensure outcomes align with organizational objectives. Thrives in opportunities to have constructive, lively conversations with peers.

## ACADEMIC PUBLICATIONS

**Automated Synthesis of Bending Pneumatic Soft Actuators - IEEE · Apr 8, 2022**
We demonstrate a design automation system for bending soft actuators which integrates multi-objective heuristic search with a powerful generative encoding that converts high level design goals, compliance, and forcefulness, in our case, into mechanical designs automatically. We compare numerous simulated results from our optimization and a physical instance fabricated via 3-D printing with a broad survey of contemporary results from the soft robotics literature.

**Stretching the Boundary: Shell Finite Elements for Pneumatic Soft Actuators - IEEE · Apr 8, 2022**
Many soft robotics researchers use numerical simulation; all of them wish their simulations would run faster. In this paper, we highlight an attractive option for simulating pneumatic soft actuator designs: zero-thickness shell finite elements. These offer a favorable balance between predictive accuracy and computational cost relative to standard approaches. The benefits conferred by shell finite element analysis are especially valuable in contexts where simulation speed is as important as absolute accuracy.

## PROFESSIONAL EXPERIENCE

**Information Systems Specialist**
**Highlife Recovery │ May 2022 – Present**
Provide research, due diligence, recommendations, troubleshooting, and execution of technical and efficiency solutions for a comprehensive, evidence-based healthcare organization. Works closely with office staff, physicians, and executive leadership to support programs and ensure a profitable and scalable business without sacrificing patient care quality.

- Utilize a variety of data sources and methods to research problems and develop recommendations
- Conduct quality assurance audits on vendor imaged documents and ensure that information is indexed correctly
- Managed EHR implementation, including vendor coordination, medical form design, and training
- Assisted in achieving 3-year CARF accreditation for the clinic through IT documentation and processes
- Facilitated prescription automation, redesigned website, and improved 10+ other client and staff workflows

**Counselor and Writer**
**The Adventure Education Company │ Spring 2014 – Present**
Work closely with founder and staff to help students develop long and short-term planning skills, teamwork, social skills, problem-solving, and critical thinking. Supports the organizational mission to help kids build physical, mental, and social confidence while encouraging them to be their own heroes while providing them with a fun and engaging experience.

- Create an accepting community through developing relationships and collaborating with other storytellers
- Modify the LARP system over multiple iterations to encourage progress tracking and skill development
- Supervise children from ages 6 - 15 while leading them through an interactive story (LARPing Camp)

**ADDITIONAL EXPERIENCE**
**Test and Systems Engineer, CTO**
ToobTek: Airway Management Training Device │ 2020 - 2022

**Engineering Honors Program Liaison**
Idea Forge: Makerspace │ 2017 - 2018

## EDUCATION

**Master of Science, Computational Modeling - University of Colorado, Boulder**
Data and Scientific Visualization │ Optimization │ Automation

**Bachelor of Science, Mechanical Engineering - University of Colorado, Boulder**
**Member of Engineering Honors Program**

## TECHNICAL COMPETENCIES

**Software**
MATLAB │ Python │ C++ │ VBA (Excel)

**Mechanical Engineering Expertise**
Heat Transfer │ Fluid Mechanics │ Robotics │ CAD │ FEA │ Material Science