

SCOTT JOSEPHSON

Maryville, TN

919-523-1187 | gedman4b@yahoo.com | [linkedin.com/in/scottmjosephson/](https://www.linkedin.com/in/scottmjosephson/)
<https://github.com/gedman4b>

SUMMARY

Independent AI Consultant operating through Intelligytics, with 30 years of engineering experience and a decade focused on production AI systems. Delivers AI-driven solutions across regulated industries through direct client engagements, with recent contract work spanning agentic AI for management consulting, full-stack generative AI for telecom, and large language model R&D for federal and pharmaceutical clients. Highly skilled in crafting full-stack generative AI applications, with deep capabilities in cloud technology on Azure and AWS, and a track record of architecting scalable, efficient solutions. Driven to leverage in-depth research and development expertise to spearhead cutting-edge technological advancements in AI, aligning with fast-evolving industry expectations.

AREAS OF RECENT ACCOMPLISHMENTS

- Developed [specddkit](#), an open source Python library for Spec-Driven Development that gives authors a typed, validated, programmable representation of an SDD specification and emitters that produce the agent-ingestion artifacts (AGENTS.md, SKILL.md, and a canonical Markdown spec) an AI coding agent can read at session start.
- Published a book on Spec-Driven Development with AI Agents: [“Tickets Don’t Compile: A Practitioner’s Guide to Spec-Driven Development for Product Managers, Engineers, and AI Coding Agents”](#) on Amazon Publishing.
- NeuroMix AI - Patent-pending (US 63/998,859), independently architected and deployed autonomous audio mixing platform built end-to-end from novel model architecture to production: <https://neuromixai.com>
- NeuroMix AI technical scope: custom decoder-only graph-aware transformer (512-dim, 8 layers, 8 heads), 15-agent orchestration system, schema-constrained action generation with grammar FSM, FastAPI production backend, and serverless GPU inference on Modal, achieving ~120x speedup; approximately 20,000 lines of Python
- Proficient AI Engineer Directory member: <https://proficientaiengineer.com/>
- Healthcare AI applications: <https://healthcareai.space>
- Authored 3 published research papers on Generative and Agentic AI in music
- Full Stack Generative AI Applications, NVIDIA cuOpt Routing Optimization API, Business Evolution Strategy, AI Center of Excellence, Agentic AI Architecture, Google Cloud GenAI, Large Language Models, Multi-Agentic AI systems, Prompt Engineering, Retrieval Augmented Generation (RAG), Vector Embeddings, Graph RAG, Transformer models, Machine Translation, Text-Generation, NLP, Text-Completion, Moderation, Image Generation, Text-to-Speech

PROFESSIONAL EXPERIENCE

Intelligytics | *Founder & Independent AI Consultant*

Sep 2023 - Feb 2026

Operate an independent AI consulting practice delivering senior- and director-level AI engineering services to enterprise, federal, and management-consulting clients. Engagements span agentic AI architecture, full-stack generative AI applications, large language model R&D, and AI strategy. Selected client engagements:

Client: Umbrage Studios — *Contract Director of Engineering*

Oct 2025 - Feb 2026

- Engaged as an independent contractor to lead engineering on agentic AI deliverables for Umbrage Studios' end client, Bain & Company.
- Developed an Agentic AI solution for establishing Value Creation with the clients of Bain & Company.

- Researched and created a demo for an Agentic Document parsing solution for the client, Bain & Company.
- Mentored Senior Engineers on AI practices.
- Upskilled with training in multiple AI courses.

Client: IHS Towers — Contract AI Consultant

Dec 2024 - Sep 2025

- Engaged as an independent contractor to deliver full-stack generative AI applications and AI strategy artifacts for IHS Towers.
- Developed three advanced full-stack generative AI applications in under a month, elevating company AI capabilities by delivering an innovative Employee Work Record app with seamless integration to existing systems, a versatile HTML/CSS/JS UI for precise data entry, a comprehensive Flask REST API, efficient data management via Azure SQL and S3/Azure Blob, secure access with Azure AD/OIDC SSO, and a Dockerized deployment utilizing Nginx, HTTPS, with advanced performance tracking through ELK/CloudWatch.
- Spearheaded the development of a full-stack application that interfaced with the NVIDIA cuOpt Routing Optimization API, leading to a 20% reduction in delivery times and marked improvements in logistical efficiency across supply chain operations.
- Crafted strategic reports and whitepapers on Business Evolution Strategy, Creating an AI Center of Excellence, and Architecture for Agentic AI that drove impactful organizational change, refined decision-making, and accelerated AI development initiatives.
- Pioneered the research and development of cutting-edge AI technologies, enhancing organizational capabilities by 25% and propelling strategic growth initiatives.
- Conducted extensive AI research on Azure and NVIDIA cloud platforms, harnessing their robust computing power to develop machine learning solutions that boosted processing speed by 25% and improved model accuracy.

Client: Crown Point Technologies — Contract Senior AI Engineer

Sep 2023 - Jul 2024

- Engaged as an independent contractor to deliver large language model research, RAG/GraphRAG systems, and semantic data fabric work for Crown Point's end clients, including the US Air Force, the European Pistoia Alliance, and other government agencies.
- Conducted in-depth research on leading large language models (LLMs) such as GPT, Claude, Llama, and Mistral, leading to insightful recommendations that enhanced model selection processes and boosted team efficiency.
- Evaluated commercial and open-source techniques in machine learning, data mining, NLP, and analytics.
- Developed RAG-based and GraphRAG systems using open-source frameworks like LlamaIndex and LangChain, resulting in a 30% increase in efficiency and a 40% reduction in query processing time, enhancing the overall performance of data systems.
- Created an advanced POC using Transformer Large Language Models in Air Force systems with Python libraries like LangChain and Llama-index, significantly enhancing system automation and decision-making capabilities.
- Successfully implemented software solutions on cloud platforms like Azure and AWS, boosting application scalability and reliability by 20%, decreasing system downtime, and optimizing deployment efficiency.
- Enhanced data integration and accessibility by designing and applying ontologies for the Semantic Data Fabric, leading to improved data interaction for the US Air Force, advanced pharmaceutical data processes for European Pistoia Alliance members, and enhanced information management for government agencies.
- Led and organized extensive knowledge acquisition sessions with customers, resulting in a 30% increase in data model accuracy and a 25% boost in decision-making efficiency by incorporating detailed and precise customer insights.
- Developed lexicons and taxonomies to boost data categorization and retrieval efficiency, enabling quick and precise access to essential information, effectively streamlining operations, and aiding in data-driven decision-making.

- Developed ontologies based on standards like BFO, CommonCore, and general ontologies such as IDMP-O, IOF, and SNOMED, ensuring compliance and interoperability.
- Enhanced data strategy by developing and integrating detailed knowledge graphs from ontologies and datasets into a database, significantly boosting organizational decision-making capabilities and data accessibility.
- Designed and deployed comprehensive dashboards and visualizations for knowledge graphs using Graph RAG, significantly boosting data accessibility and enabling informed decision-making across multiple teams, leading to more efficient operations and strategy development.

Amgen | Senior Semantic Engineer

Jul 2022 - Sep 2023

- Led a successful team of Data Engineers to migrate the Data Pipeline, boosting data processing speed by 30%, enhancing decision-making accuracy, and ensuring more reliable data operations.
- Improved and launched complex software solutions with Databricks on AWS cloud, dramatically increasing data processing speed, enhancing operational scalability, optimizing system efficiency, and empowering strategic decision-making with faster insights.
- Conducted in-depth knowledge acquisition sessions with subject matter experts, strengthening team expertise, effectively integrating crucial domain knowledge into key projects, and delivering substantial improvements in project performance and results.
- Enhanced and managed a comprehensive Information Model in the Healthcare domain, significantly boosting data accuracy, optimizing stakeholder communications, empowering more informed decision-making, and ultimately raising patient care quality through meticulous data analysis and strategic model integration.
- Enhanced and continually updated an Information Model for a Healthcare domain, resulting in a 30% improvement in data accuracy and empowering various departments to make more informed decisions that improved organizational efficiency.
- Enhanced and maintained an advanced Ontology model for the Healthcare domain, improving data interoperability by 30%, boosting semantic search accuracy, and streamlining data management processes, resulting in a more efficient healthcare data system.
- Improved the Enterprise Data Fabric by designing and recommending key improvements that elevated data integration efficiency by 40% and accelerated data retrieval by 30% using advanced Retrieval Augmented Generation (RAG) techniques.

IQVIA | Senior AI Scientist

Mar 2019 - Jul 2022

- Wrote and submitted a patent for clinical trials and automated reasoning.
- Led a Machine Learning Research and Engineers team for the Machine Language Translation project.
- Researched and developed techniques for Machine Language Translation using NLP, Deep Learning, and Machine Learning. Improved efficiency in medical document processing by 20-30%. Earned the IQVIA Impact Program Bronze award.
- Evaluated commercial and open-source techniques in machine learning, data mining, NLP, and analytics.
- Deployed software solutions to cloud platforms such as DSWB and AWS.
- Developed a comprehensive end-to-end system for the Intelligent Virtual Assistant project, successfully showcased to clients and IT leadership to improve strategic alignment, while conducting detailed requirements analysis and facilitating cross-functional collaboration with business experts to craft project specifications.
- Implemented an advanced backend machine reasoning system utilizing clinical trial domain knowledge, which boosted data processing efficiency and accuracy by streamlining analysis processes, cutting data errors by 30%, and accelerating trial timelines by 40%.

- Championed data management, knowledge, and ontology engineering efforts by devising an advanced semantic framework for multiple clinical trials ontologies, significantly boosting data integration efficiency and the accuracy of clinical trial outcomes evaluation.
- Authored a series of IQVIA blogs and whitepapers on enterprise knowledge graphs, significantly enhancing organizational awareness and adoption of modern data strategies, ultimately driving interdepartmental collaboration and informed decision-making.

Dynpro | Lead Data Scientist - Consultant

Jul 2017 - Feb 2019

- Worked with Booz Allen Hamilton and developed Python machine learning models and NLP engines for the Centers for Disease Control to predict causes of death in all 50 states.
- Leveraged commercial and open-source techniques, such as XGBoost and LSTM, to refine model selection and analytical processes in Machine Learning, data mining, and Natural Language Processing, achieving substantial gains in system efficiency and performance through strategic optimizations.
- Developed quarterly roadmaps based on impact, effort, and test coordination. Collaborated with stakeholders to achieve short-term and long-term goals over 12 months.
- Coached, developed, and motivated 4 team members, including junior data scientists, on programming and data mining techniques, culminating in a 20% improvement in data science methods.
- Collaborated with internal stakeholders to gather analytical requirements for database modifications, data science workflows, data analytics, data visualizations, and machine learning models. Exceeded customer needs with a 20% productivity improvement and shortened delivery time by six months.

Metabolon | Senior Software Engineer/Data Analyst

Sep 2015 - Jun 2017

- Conducted complete software lifecycle analysis: requirements, activities, and design for Bioinformatics Laboratory Information Management System and customer portal applications for metabolomics life sciences data applications. Corrected 30% of defects, received a high customer satisfaction response rating.
- Implemented and managed the deployment of software solutions to Azure and AWS cloud platforms, significantly boosting system scalability and reliability, facilitating resource optimization, and effectively supporting an expanding user base.
- Developed 100% of projects using Data Curation and Python reports, improved content delivery by 15%.
- Promoted the Metabolomics Ontology concept using semantic frameworks and knowledge engineering principles, garnering organizational and executive support. Forecasted 15-20% improvement in productivity.
- Used interpersonal and communication skills in interactions, enriching team collaboration and customer relationships on projects by publicly recognizing team members who exceeded customer expectations.
- Facilitated ongoing customer communication by consistently distributing comprehensive meeting minutes and detailed action plans that outlined specific tasks and target completion dates, significantly enhancing project transparency and stakeholder accountability.

CURRENT EDUCATION

Capitol Technology University - Laurel, MD

Aug 2024 - Present

PhD Candidate, Artificial Intelligence (GPA: 4.0)

Dissertation: A Multi-Agent AI Framework for Musical Score Writing

Achievements: Research Areas: Audio data for Large Language Models, Multi-Agent AI systems for Musical Score creation

Florida Institute of Technology - Melbourne, FL

Sep 1992 - Aug 1995

Master of Science, Computer Science

Achievements: Master's Thesis: [Designing a Voice User Interface for a Fuzzy Expert System Tool.](#)

Mercy University - Dobbs Ferry, NY

Sep 1989 - May 1992

Bachelor of Science, Mathematics, Computer Science Minor

PUBLICATIONS

- [Tickets Don't Compile: A Practitioner's Guide to Spec-Driven Development for Product Managers, Engineers, and AI Coding Agents](#) (Amazon Publishing). June 2026
- Harmonic Hallucinations: Evaluating The Efficacy Of A Specialized "Critic" Agent In Correcting Music Theory And Orchestration Errors In LLMs (ISMIR-2026 Preprint). 2026
- [Large Language Models Using Retrieval Augmented Generation and Prompt Engineering for AI-Driven Music Source Separation: A Literature Review](#). Proceedings of the International Conference on Software Engineering of Emerging Technologies (SEET-2025). 2026
- [Leveraging Prompt Engineering and Retrieval-Augmented Generation with Large Language Models for AI-Driven Music Source Separation](#). Proceedings of the 2025 International Conference on the AI Revolution: Research, Ethics, and Society (AIR-RES-2025). 2026
- [A Multi-Agent AI Framework for Musical Score Writing](#). Proceedings of the Research Association for Interdisciplinary Studies (RAIS-2025). 2025
- Musical Timbre Recognition Using A Fuzzy Expert System Tool. Proceedings of the Eighth Annual Florida Artificial Intelligence Research Symposium - FLAIRS-95: Musical Timbre Recognition Using A Fuzzy Expert System Tool. 1995
- Clinical Trials.gov Ontology. Solo Project: Clinical Trials.gov Ontology, Jan 2022 - Present. Developed and published a clinical trials ontology based on the schema of clinicaltrials.gov AACT database.
- Navigating Social Media for Seniors. Navigating Social Media for Seniors, Amazon Kindle, Jul 1, 2024
- Home Healthcare for Seniors. Home Healthcare for Seniors, Amazon Kindle, Jun 30, 2024
- Home Gardening for Seniors. Home Gardening for Seniors, Amazon Kindle, May 24, 2024

PATENTS

- Graph-Aware Transformer-Based Autonomous Audio Mixing and Production System with Schema-Constrained Action Generation and Adaptive Reinforcement Learning. Patent Pending # US 63/998,859. Date of Application: 3/6/26
- Machine Reasoning As A Service. Patent # US 11,610,690. Date of Patent: 3/21/23

CODE REPOS

Open Source Contribution: <https://pypi.org/project/specddkit/>

Healthcare AI Apps: <https://healthcareai.space/>

Github: <https://github.com/gedman4b/>

Clinical Trials.gov Ontology: Developed and published a clinical trials ontology based on the schema of clinicaltrials.gov AACT database.

CERTIFICATIONS

- Proficient AI Engineer
- AI Engineer Builder with n8n Agents and Voice Agents
- AI Engineer Agentic Track: The Complete Agent & MCP Course
- AI Engineer MLOps Track: Deploy Gen AI & Agentic AI at Scale
- AI Leadership Track: Gen AI, Agentic AI for Business Leaders
- Google Cloud Gen AI Leader
- IA Doctorates CITI Program for Doctoral Research
- AI Governance
- Certiport ITS Python
- Machine Learning Certificate by Stanford University on Coursera

- Multiple Data Science Certifications
- Neo4j
- GraphDB (Ontotext)
- Genomic Data Science Specialization Certification by Johns Hopkins University on Coursera
- Databricks Lakehouse Fundamentals
- Scaled Agile SAFe Practitioner