Joseph Matthew Ingenito

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Summary

Software Engineer specializing in enterprise platforms at the intersection of public sector technology and financial services. Experienced in designing and scaling systems that automate complex scheduling workflows for 700+ police departments worldwide, manage $100M+ in annual cash flow, and deliver custom SaaS solutions tailored to municipal needs. Passionate about building scalable, impactful products that improve efficiency, financial accuracy, and service delivery for government agencies.

KEY SKILLS

- **Languages & Frameworks:** C#, VB.NET, TypeScript, SQL, .NET Core/Framework/Standard, ASP.NET (MVC/Web Forms), Blazor, WCF, Node.js, React, Python, C++
- **Machine Learning:** TensorFlow, Scikit-learn, Vertex AI, Gemini APIs, RAG, Few-shot Prompting, Fuzzy Matching
- **Data & Infrastructure:** Microsoft SQL Server, REST API Design, Microservices, Docker, Git, CI/CD, DevOps
- **Strengths:** Enterprise Software Engineering, Legacy Modernization, Automation Strategy, Cross-Functional Collaboration

PROFESSIONAL EXPERIENCE

Visual Computer Solutions | Freehold, NJ | On-Site

- **Lead Software Developer (Jul 2024 – Present)**
  - **Modernization & Architecture:** Directed migration of a legacy ASP.NET Web Forms platform to .NET 8 Blazor Server, introducing best practices including dependency injection, unit testing, and a microservices-based back-end architecture.
  - **Automation Module:** Designed and delivered a configurable automation engine in .NET 8 (inspired by Alexa) that enables users to create custom workflows upon job creation, deployed as an ASP.NET Core microservice.
- **Senior Software Developer (Jul 2023 – Jul 2024)**
  - **Performance Optimization:** Reduced page load times by up to 50% by refactoring a legacy VB.NET codebase into a React/Node.js, and ASP.NET Core stack, introducing optimized SQL queries and asynchronous processing.
  - **RAG Assistant:** Built a retrieval-augmented generation (RAG) assistant (Node.js + Weaviate) embedding 10k+ knowledge-base articles, providing employees with contextually accurate support.
  - **Voucher Verification:** Developed an ML-driven voucher verification agent using Vertex AI + Gemini 2.0, significantly reducing errors in approval workflows.
  - **TensorFlow Model**: Engineered a TensorFlow model leveraging linked Customer Profile data (from the fuzzy-string resolution engine) to accurately predict whether newly created Customer Profiles were duplicates of existing Global Vendors.
  - **Mobile Platform Upgrade**: Supported migration of a Xamarin.Forms app to .NET MAUI, ensuring full compatibility with Android 14 and iOS 17.
- **Software Consultant (Aug 2018 – Jul 2023) Hybrid**
  - **Fuzzy-String Resolution:** Designed and implemented a custom fuzzy-string matching engine in .NET 4.5 to scan client databases and link customer profiles to global vendor entities, laying the groundwork for a later TensorFlow-based solution.
  - **Granular Activity Log:** Developed WCF (.NET 4.5) endpoints to detect and record field-level changes in database entities, enabling staff to audit and track client modifications to mission-critical data.
  - **API Ecosystem Architecture**: Replaced kiosk database connections with a scalable WCF (.NET 4.5) REST API, improving security, scalability, and maintainability across kiosks while serving mobile applications simultaneously.
    - **Contactless Mode**: Implemented new WCF (.NET 4.5) endpoints and a supporting front end to introduce RFID-based punch-in/out during the COVID-19 pandemic, eliminating reliance on touch-screen controls.
  - **Secure Vendor Payment Platform**: Designed SOC 2–compliant payment system in ASP.NET Web Forms, integrated with M&T Bank API, securely managing $100M+ annual cash flow.
  - **Mobile Rework:** Restored usability of a Xamarin.Forms app used by 10,000+ police officers by repairing core business logic and stabilizing its integration with WCF REST services.

- **Custom Report Writer:** Delivered a web-based reporting tool in ASP.NET Web Forms (.NET 4.5) that provided client access to simplified aliases while integrating core business logic for accuracy and efficiency.
- **Geofencing:** Designed and implemented a geofencing feature by integrating the OpenStreetMap API into an ASP.NET Web Forms application, enabling admins to save polygon coordinates. Built supporting WCF (.NET 4.5) endpoints to implement the Ray Casting algorithm for validating mobile-submitted coordinates.
  - These polygon coordinates were eventually used to enforce township boundaries upon job request by customers, reducing the number of invalid pending jobs that Call-Taker staff would have to validate.
- **Fairness Policy Enhancements:** Expanded the flagship Fairness Policy rules engine (.NET 4.5) by adding configurable rule types that can be combined with existing policies, meeting SaaS feature requests from police departments.

University of Denver | Denver, CO | On-Site
Graduate Teaching Assistant | Department of Mathematics (May 2022 – June 2023)

- **Supported undergraduate instruction** across multiple mathematics courses, including Calculus III, Business Calculus (×2), Linear Algebra, and Ordinary Differential Equations (ODEs) (×2).
- **Delivered 7 guest lectures:**
  - Math 1953 – Calculus III (1 lecture)
  - Math 1200 – Business Calculus (2 lectures)
  - Math 2070 – ODEs (4 lectures, assisted)
- **Led 60 recitation sessions (10 per course):** Deepened student understanding through guided problem-solving, review sessions, and group discussions.
- **Held weekly office hours:** Provided one-on-one academic support and maintained open communication channels with students to foster engagement and address learning gaps.
- **Proctored exams and quizzes:** Graded assignments and lab reports and maintained accurate student records using **Canvas LMS.**
- **Collaborated closely with faculty**: Ensured alignment between recitation content, lectures, and departmental standards.

PROJECTS

MUSE Research Library – C++ | Python | Analytic Number Theory | Data Integration

- Spearheaded the development of a specialized **C++ research library**, funded by **The College of New Jersey (TCNJ)**, to support original research in **analytic number theory**.
- Designed a custom **linear algebra engine** optimized for precision and computational performance; implemented advanced mathematical algorithms including **Gram-Schmidt orthogonalization**, **Continued Fraction Expansion**, and **LLL lattice basis reduction**.
- Engineered a **data integration pipeline** between C++ modules and **Python-based visualization tools**, leveraging **JSON** for configuration and bidirectional data transfer. This architecture enabled modular experimentation and enhanced insight through real-time graphical outputs.
- Project contributed to ongoing academic work and laid the groundwork for publication-ready numerical experiments in pure and applied mathematics.

Self-Similar Fractal Strings – Python | Visualization | Algorithm Design

- Developed a specialized Python visualization toolkit for generating and analyzing self-similar fractal structures, enabling high-fidelity rendering of recursive geometries through an intuitive user-configurable interface.
- Implemented a novel fractal generation algorithm inspired by the work of Dr. Michel L. Lapidus (Fractal Geometry and Complex Dimensions), with optimizations for speed and memory efficiency, suitable for high-resolution academic outputs and exploratory computation.
- Streamlined the creation of academic posters, visual aids, and presentations, enhancing the clarity and communicability of complex mathematical phenomena in research seminars, symposia, and classroom settings.

EDUCATION

University of Denver | Denver, CO
Master of Science (M.S.) in Mathematics, June 2023

- **Relevant Coursework**:
  - Mathematics of Machine Learning and AI (Seminar)
  - Statistical Modeling with R
  - Information & Coding Theory

The College of New Jersey | Ewing, NJ
Bachelor of Science (B.S.) in Mathematics, *Cum Laude*, May 2021

- *Honors Thesis Titl*e: On the Second Order Kuramoto Model of Coupled Oscillators.
- *Awards/Honors:* Junior/Senior Achievement Award, Pi Mu Epsilon - National Mathematics Honors Society.

Brookdale Community College | Lincroft, NJ
Associate of Science (A.S.) in Electrical Engineering, May 2018