Isaac Pittel

Software Engineer | Top Secret Clearance
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Skills

- .NET application design, development and deployment.
- Add-in development for Computer Aided Engineering (CAD) software.
- Technical support and system administration for CAD tools.
- Technical program management.

Experience

BAE Space and Mission Systems / Application Developer Senior

March 2024 – PRESENT, Westminster, CO

- Successfully led a team of 7 to automate optical mirror creation in SolidWorks by importing optical ray and mirror surface geometry in an equation-driven design, saving an average of 300 engineering hours per month. Designed, developed and deployed required .NET 8.0 C# add-ins for SolidWorks, Code V and Zemax, and designed the intermediary optical data storage files.
- Led the architecture and development of Composer, an engineering content management application used by 800+ engineers to re-use heritage drawing notes. Designed and implemented all aspects of the C# WPF application, including views, viewmodels, Entity Framework ORM mappings, queries, REST API, and services. Deployed versioned .msi installers using Advanced Installer and Microsoft's System Center Configuration Manager. Over 68,000 drawing note sets have been re-used, saving $4,000,000 over two years.
- Developed and maintained Scribe, a WPF application enabling engineers to create engineering note lists. I identified and addressed critical vulnerabilities in Scribe's unsupported messaging system by implementing messaging using NetMQ's router-dealer design pattern and the TCP transport protocol, reducing the number of message-queue related support tickets by 95%.
- Managed the deployment of Composer, Scribe, and other engineering tools to secure environments. Developed a mechanism for one-way, non-conflicting data updates from non-classified to classified environments using SQL transaction logs.

Ball Aerospace / Application Developer I & II

Oct 2022 – March 2024, Boulder, CO

- Designed, developed and deployed a document scanning service using OpenCV and Telerik UI. Translated over 2 million engineering documents from XAML and RTF to HTML for web application compatibility. This application also automatically corrected visual artifacts resulting from mis-translation, successfully repairing 800+ engineering equations and geometric dimensioning feature control frames.
- Developed WPF utilities and services to convert engineering content from legacy schemas to Model-Based-Definition ready schemas. These applications automated labor-intensive tasks in SolidWorks, DraftSight, Agile PLM, and 3DExperience, enabling engineers to quickly process CAD files and material specifications in batches.
- Developed 7 SolidWorks add-ins to report inertial properties, update templates, update program legends, and import point clouds, saving 400 engineering hours every month.
- Partnered with internal stakeholders and external developers to establish and configure a comprehensive material data storage system. Designed and developed mechanisms to extract, transform, and transfer test data from various off-the-shelf machines directly into the system. Automated build and deployment of configuration updates for the system through a .war file deployment mechanism.

Ball Aerospace / Mechanical Engineer
Nov 2018 – Oct 2022, Boulder, CO

- Spearheaded the design and production of 3D printed antenna paint masks. My designs saw a 70% reduction in hardware anomaly reports, a 20% reduction in technician setup time, and slashed costs by 98% compared to the previous solution. To support continuous design efforts, I pioneered the design guide for 3D printed paint masks and published several internal drawing templates for future engineers to follow.
- Provided technical support to over 600 mechanical engineers. I supported installation assistance, SolidWorks repair via registry modification, development of custom macros, MSMQ troubleshooting, hardware diagnostics and 3D geometry repair.
- Onboarded and trained over 70 mechanical engineering new hires on the internal engineering tool suite. I developed and standardized the onboarding curriculum for mechanical engineering, with the primary intent of making new engineers feel comfortable, supported and effective from day one at the company.

Personal Development

Unity Strategy Bot / Reinforcement and Imitation Learning
- Developed a physics-oriented arcade-style timed strategy game in Unity.
- Created and trained machine learning agent brains with reinforcement learning, generative adversarial imitation learning (GAIL), behavioral cloning, and hyperparameter optimization.
- Agents averaged 130% score advantage against play-tested humans.

NASA Lunabotics / Robotic Mining
- Designed, manufactured and assembled raw material collection, filtering, storage and unloading systems.
- Developed and implemented area navigation using Robot Operating System's navigation stack.

Education & Qualifications

2022 – 2024 – Master of Science in Artificial Intelligence and Machine Learning at CSU Global
- Honors: Distinguished Scholar

2016 – 2020 – Bachelor of Science in Mechanical Engineer at Colorado School of Mines
- Honors: Magna Cum Laude, Dean's List

DoD Top Secret Clearance

Certified SolidWorks Professional (CSWP)

Technologies, Languages & Skills

- C#/XAML, Python, SQL
- Git, Visual Studio, PyCharm, Eclipse, Azure Devops
- Application Development, .NET Framework and Core, Universal Windows Platform, Entity Framework, Windows Presentation Foundation, Telerik UI, WinForms, Blazor, .NET Maui, Multithreading, MVVM Architecture, Message-Driven Architecture, Scrum, Agile, System Administration, System Configuration, REST API Interactions, Add-in Development, Computer Vision, Machine Learning
- Unity, Postman, SQL Server Management Studio, SQL Server Profiler, Oracle Agile, TRIOS, Material Center, SolidWorks, DraftSight, AutoCAD, Cura, Autodesk Meshmixer