

SKILLS

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Programming: Python, R, SQL, Bash, Javascript, C#, C++

Technologies: GenAI, Machine Learning, Agile/Scrum, Linux, Cluster, .NET, Kubernetes

Tools: Langchain, DSPy, Django, Flask, Node.js, Typescript React, Jenkins, Git, JIRA, Azure, Slurm

EXPERIENCE

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**IHME, University of Washington***Software Engineer**Seattle, WA**12/20 - Present*

- Led design and development of a GenAI tool for researchers that automatically screened scientific articles (PubMed, Google Scholar, etc.) for health metrics modeling (e.g., YLD, mortality), extracted metadata and point estimates, improving selection accuracy by 15% and accelerating the review process 10x.
- Member of a core team that researched on Large Language Models like Generative Pre-trained Transformer which provided case studies for Artificial Intelligence tools-integrations at IHME, to the Senior Management Team.
- Designed and developed a complete Django application for viewing and moderating model data on the web for the management without having to navigate the cluster file system. Model data-updates from the file system were auto-synced to the database.
- Implemented an Efficient Column Loading feature in Winnower, a microdata extraction tool, resulting in reduced memory requirements and allowing for large data extractions to be processed on a laptop rather than requiring cluster resources.
- Developed multiple version based R packages for institute-wide use on HPC clusters and created continuous deployment pipelines to the IHME CRAN repository using Jenkins. This provided a more streamlined and enhanced tool-set for researchers enabling scientific publications to tie with R package versions.
- Researched and developed multiple python packages and web applications to facilitate health data processing and data visualizations for internal and public. (<https://api.healthdata.org/>)

[ Technologies: Python, Typescript, Langchain, DSPy, GenAI, R, JavaScript, Node.js, SQL, Kubernetes, Jenkins, Bash, Cluster, Slurm, Django, Linux ]

**Digital Canal Corporation***Lead Software Product Engineer**Bothell, WA (Remote)**01/16 - 12/20**Software Product Engineer**Dubuque, IA**05/12 - 12/15*

- Developed core features including advanced engineering analysis, design and interactive reporting in Windows applications (VersaFrame, Steel Design, etc.) using C# and .NET technologies for Structural Design Engineering and Construction industry.
- Spearheaded code refactoring of software including Shear Analysis, Composite Steel Design, etc. written in C to C# for easy maintenance and faster development cycle. Completed code refactoring of massive SolidBuilder product (CAD software with millions of lines of executable C++ codes) for compatibility with C++ 10.0, new CAD Engine.
- Introduced and established Git as a version control practice and JIRA as product management tool throughout the company.
- Verified Digital Canal software products (Aluminum Design, Wind Analysis, etc.) for compliance with latest engineering codes (AISC, ACI, ASCE, NDS and IBC) using MATLAB and python.
- Designed and presented webinars on application of Digital Canal products to groups of 10 to 15 at a time.
- Supervised internal and external development teams, managed product deadlines and software development lifecycle (SDLC).
- Functioned as a point of accountability between clients (mechanical and structural engineers), developers, sales and management. Accelerated software development projects and achieved all-time high revenues for the engineering department.
- Launched web services (web design and hosting) for clients in the Building and Design Industry.
- Designed and sent out mass marketing emails and performed analysis and visualization for campaign results. Reported my analysis to the CEO for decision making which resulted in higher client retention and ROI.

- Updated C# applications for compliance with current civil engineering standards (AISC, ACI, etc.).
  - Sole ownership of software packaging and deployment for all the software products using InstallShield.
- [ Technologies: C#, C++, Git, JIRA, WPF, MFC, HTML, CSS, Python, MATLAB, SQL, InstallShield ]

## EDUCATION

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### University of Washington

*M.S. Mechanical Engineering*

*Seattle, WA*

*2014 - 2017*

**Course works** on Machine Learning, Scientific Computation and High-Performance Programming

### Loras College

*B.S. Engineering, Minor in Mathematics*

*Dubuque, IA*

*2008 - 2012*