Saivenkat Jilla

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Education

University of Waterloo Expected Dec. 2027
Bachelor of Computer Science, Artificial Intelligence Specialization, Minor in Combinatorics and Optimization ***Average: 91%***

Experience

Software Engineering Intern May 2026 – Aug. 2026
Capital One *Toronto, ON*
- Engineering an end-to-end interview-scheduling system using Next.js, Go, PostgreSQL, and AWS, bridging candidate and recruiter workflows through dynamic availability mapping, SSO integration, and centralized job-round management

Undergraduate Research Assistant Jan. 2026 – Apr. 2026
University of Waterloo | PI: Professor Srinivasan Keshav, Supervisor: Robin Young *Waterloo, ON*
- Engineered **active learning** pipelines for GEDI biomass estimation, demonstrating that **spatial sampling** mitigates the cold-start problem by outperforming random baseline strategies by 27% under extreme data starvation (N=25)
- Developed a 2D landscape generator via **Gaussian Random Fields** to simulate 3,000+ data points, modelling smooth and chaotic environments to evaluate the situational superiority of different learning strategies
- Architected a **Python/SciPy** evaluation suite to benchmark ML strategies, showing **Attentive Neural Processes (ANPs)** outperformed **Random Forests** by $> 3\times$ accuracy (R^2) in chaotic environments under data starvation ($<$ 1% sample size)

Software Engineering Intern Aug. 2025 - Jan. 2026
Marsh McLennan *Toronto, ON*
- Automated case-handling by building an email classifier with **RAG-based** semantic search and a **RESTful Node.js** API
- Resolved **1,000+** exposed secrets by engineering a GitGuardian/JWT remediation pipeline to win an org-wide tournament
- Saved **100+ hr/wk** by automating **300+**-instance database deployments in GitHub Actions with rollback/secret handling
- Bolstered preemptive security and development velocity by piloting a GitHub bot for OWASP vulnerability auditing and developing a natural-language-to-workflow app via **Mastra AI**
- Optimized reliability for **30+** apps by refining/documenting **multi-cloud** designs (OCI, AWS, Azure, GCP) with dev teams

Machine Learning Researcher Jul. 2024 – Aug. 2025
Alternative Protein Project *Waterloo, ON*
- Extracted genomic insights for cultivated meat by architecting an end-to-end **RNA-seq** workflow to analyze public datasets
- Optimized analysis of large-scale public single-cell datasets by engineering a reproducible **Python** pipeline (Scanpy, anndata, pandas, scikit-learn, rpy2) enabling efficient **QC**, **clustering**, and **visualization** of large datasets

Full-Stack Software Engineer Jan. 2025 – Aug. 2025
The Mathematics Society of the University of Waterloo *Waterloo, ON*
- Eliminated unreliable API dependencies for term lookups, stabilizing the interface via memoized utility functions
- Streamlined admin workflows by engineering a multi-select UI and RESTful backend endpoints for bulk exam management

Software Engineering Intern Jan. 2025 – Apr. 2025
Global X Investments Canada *Toronto, ON*
- Increased organic traffic to core financial pages by reducing load times by **15%** and refining technical **SEO**; achieved via **API** optimizations, frontend **lazy loading**, and metadata enhancements to maximize indexing and retention
- Drove a **32.4%** email open rate and scaled web presence by deploying **80+** pages/email blasts to support product launches
- Saved **100+ hr/yr** by automating **EN/FR** content synchronization and internal linking via custom **Python** and **PHP** scripts

Projects

AI-Driven Simulated Patients for Clinical Training - used by GR Hospital | *Next.js, TypeScript, Python, medspaCy, NLTK*
- Engineered an LLM-based patient simulator to generate diverse, medically accurate profiles for clinical training
- Integrated medical literature and symptom datasets with **sentence-transformers** to enable realistic patient-student conversations and reduce hallucinations for communication practice with vulnerable populations
- Developed NLP-based evaluation modules via **spaCy** and **NLTK** to assess clarity, tone, and accuracy of responses

BiQuadris – Tetris Clone | *C++, UML, SDLC, XWindow, Git*
- Designed and implemented "BiQuadris", a Tetris-like game in **C++** using **OOP** principles and the **MVC architecture**, with dynamic features including custom keybinds and randomized block generation for levels
- Architected a highly extensible game state via modular design, minimizing coupling to support future feature integration

Technical Skills

Languages: Python, C/C++, Java, TypeScript, JavaScript, HTML/CSS, SQL, Bash, R, MATLAB, PHP, VBA, Racket
Frameworks: pandas, NumPy, scikit-learn, Matplotlib, Scanpy, BeautifulSoup, React, Node, Express, Tailwind, Bootstrap
Tools/Infrastructure: Git, Docker, GitHub Actions, Linux, OCI, PostgreSQL/MySQL, MongoDB, Visual Studio, Figma, WordPress