

Agrim Sood

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EDUCATION

B.Sc. Specialization in Computing Science

April 2025

University of Alberta, Edmonton, AB

TECHNICAL SKILLS

Programming Languages: Java, JavaScript, TypeScript, Python, C, C++, MATLAB, HTML/CSS

Frameworks & Libraries: Vue.js, Playwright, TensorFlow, PyTorch, OpenCV

Technologies: AWS, MongoDB, SQL, DuckDB, Power BI, Tableau, Git/GitHub, Android Studio, CI/CD Pipelines, QA Testing, Responsive UI, Figma, Docker

Data Analytics & Visualization: Pandas, NumPy, scikitlearn, Matplotlib, Seaborn, Tableau, Power BI

WORK EXPERIENCE

Machine Learning Research Student

PCL Construction

May 2025 – Present

- Led research on graph-based pattern detection for **10k+ engineering drawings**; benchmarked **MLP, k-NN, Graph Neural Networks (GNNs), and Bayesian Neural Networks with active learning**, maximizing F2-score on spatially clustered text.
- Added an **FCN-ResNet-50 / U-Net / YOLO vision pipeline** for symbol segmentation and detection, **boosting recall** to parity with non-vision baselines.
- Converted PDFs to **graph objects (PyTorch)** and iteratively refined labels, **raising tagging precision by 25%** compared to baselines.
- Packaged models into a **Streamlit** application with **DuckDB storage** and sub-second queries for enterprise deployment.
- **Refactored a 10k-line Python 3.11 codebase** into organized plug-in modules, reducing developer onboarding time by **40%** and **accelerating CI/CD releases**.
- **Automated PDF quantity take-off** with span-aware text extraction, regular expressions, and Excel/CSV export, **cutting manual effort by about 80%**.

Software Developer

Dotdash Meredith

Sep 2023 – May 2025

- Led **end-to-end development** of a company-wide, **multi-page testing dashboard**, owning both **front-end (HTML, Vue.js)** and **back-end components** to deliver real-time results and enhance accessibility for

QA engineers.

- Engineered a **Playwright-based testing framework in JavaScript**, reducing **manual testing time by 30%** and enabling scalable regression suites.
- Streamlined **data-cleaning processes with Python and Excel**, delivering actionable insights, improving QA workflows, and reducing debugging time.
- Integrated **AWS DocumentDB (MongoDB-compatible)** into the back-end; maintained dev DB, optimized queries, and applied migrations to support app development and deployment.
- **Deployed testing tools and dashboards via CI/CD pipelines**, improving deployment efficiency and reliability.
- Collaborated with senior engineers in an **Agile/Scrum environment**—led **Scrum ceremonies, refined backlog items, and applied agile metrics to guide development**.
- Led **design and code reviews**, aligning developers on standards while **pre-empting bugs, enforcing best practices, and eliminating code smells**.
- Leveraged **large language models (LLMs)** to accelerate **debugging, code generation, and learning**, enhancing development efficiency.

PROJECTS

- **Social Distribution** (2024): Collaborated with a team of five to develop a distributed social-media app using Vue.js, REST APIs, and MongoDB, featuring privacy controls, real-time dashboards, and cross-server interactions.
- **Musicwiz** (2023): Built a hackathon prototype simulating music-recommendation algorithms (Spotipy, scikit-learn) with unsupervised models and Kaggle datasets; visualized insights via graphs.
- **Meal Prep App** (2022): Java Android app (team of 6) that auto-creates meal plans, recipes, and live ingredient inventories with real-time sync via Firebase Realtime DB; designed UI/UX in Figma, wrote unit/UI tests, and shipped sprint releases through Git-based Agile workflows.
- **SQL Movie Service** (2022): Python + SQLite database to track user watch behaviour and provide recommendation queries.

CERTIFICATIONS

- **AWS Cloud Practitioner Essentials (2024)**; Networking Essentials workshop for Cloud Applications on AWS.
- **Udemy: Data Science and Statistics (2021)**.
- **Certificate in Innovation and Entrepreneurship, University of Alberta (2025)**.