

CHHAVI NAYYAR

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EDUCATION

University of British Columbia (UBC)

Sept 2022 – Present

BSc, Combined Major in Computer Science & Cognitive Systems

Vancouver, BC

- **Relevant Coursework:** Distributed Systems, Data Structures & Algorithms, Databases, Machine Learning, Software Engineering, Web Development, Cloud Infrastructure
- **Leadership:** Design Director – UBC UX Hub | Member – Women in Computer Science, Girls in STEAM

PROFESSIONAL EXPERIENCE

Teaching Assistant – Human-Centered AI

Jan 2026 – Present

UBC Computer Science Department (CPSC 532C/554C)

Vancouver, BC

- Supporting graduate-level instruction in Topics in Artificial Intelligence: Human-Centered AI, facilitating discussions on algorithmic bias, fairness, and human-computer interaction for advanced students
- Leading lab sessions and guiding students through practical implementations of human-centered AI concepts, bridging theoretical foundations with real-world applications in ethical AI development
- Managing course communications and moderating online discussions, fostering collaborative learning environment and ensuring timely resolution of student inquiries

Teaching Assistant – Cognitive Systems

Jan 2026 – Present

UBC Cognitive Science Department (COGS 300/303)

Vancouver, BC

- Delivering instruction for COGS 300: Understanding & Designing Cognitive Systems, teaching core concepts in cognitive science and intelligent system design to undergraduate students
- Contributing to COGS 303: Research Methods in Cognitive Systems, guiding students through experimental design, methodological reasoning, and interdisciplinary research approaches
- Facilitating labs, discussions, and assignments to strengthen students' analytical thinking and ability to integrate perspectives from psychology, neuroscience, AI, and linguistics

Automation Engineer

Sept 2025 – Present

UBC Extended Learning

Vancouver, BC

- Built end-to-end automation pipeline using **Python** and **Google Apps Script** to transform CSV survey data into structured PDF reports, eliminating **70%** of manual processing
- Engineered automated notification systems and reminders, boosting survey response rates by **25%** through intelligent workflow orchestration
- Designed scalable data validation and error handling mechanisms to ensure data integrity throughout the automation pipeline, reducing manual intervention requirements

Machine Learning Engineer

June 2025 – Dec 2025

BC Cancer

Vancouver, BC

- Engineered unsupervised ML models using **Python** and **scikit-learn** to analyze healthcare feedback, improving thematic pattern detection by **40%** and enabling data-driven AI deployment strategies
- Developed open-source concept mapping toolkit using **NetworkX** and **FastAPI**, reducing manual analysis time by **50%** through automated qualitative data visualization
- Built scalable data pipelines enhancing model interpretability by **35%** through advanced clustering algorithms and interactive **Plotly** visualizations
- Collaborated with healthcare researchers and clinicians to translate domain expertise into technical requirements, ensuring ML solutions aligned with clinical workflows and regulatory considerations

Deep Learning Engineer

Apr 2025 – Dec 2025

UBC Computer Science Department

Vancouver, BC

- Architected VNet deep learning models using **TensorFlow** and **PyTorch** for eye-tracking analysis, achieving **25% improvement** in predictive accuracy through mathematical optimization
- Orchestrated high-performance computing experiments on **Slurm** clusters, accelerating model training pipelines by **30%** and enabling rapid iteration at scale
- Collaborated with research teams to translate cognitive science requirements into technical solutions, demonstrating strong communication with non-technical stakeholders

Full-Stack Web Developer

July 2025 – Sept 2025

UBC Michael Smith Laboratories

Vancouver, BC

- Designed responsive **TypeScript/React** web application for graduate Biochemistry program, driving estimated **40% increase** in user engagement through user-centered design
- Established **CI/CD workflows** and content management systems, reducing update turnaround time by **30%** and improving accessibility for 200+ stakeholders
- Conducted UX research and usability testing to align website functionality with user needs, implementing feedback-driven improvements to navigation and information architecture

Software Engineer Intern

Jan 2024 – Mar 2024

TechyWeb Solutions

Vancouver, BC

- Developed production-grade **RESTful APIs** in **Python** with comprehensive test coverage, integrating **CI/CD pipelines** via **GitHub Actions** to streamline deployment and ensure code quality
- Collaborated in **Agile teams** using **Git**, **Jira**, and **Confluence** to deliver client-facing features, demonstrating ownership and effective communication with engineers, product managers, and stakeholders

TECHNICAL PROJECTS

Your Search Box – Multi-Modal Search Service | *Node.js, TypeScript, React, Next.js, NLP*

Present

- Engineered server-side rendered search platform supporting voice, image, and text inputs using **TypeScript** and **Next.js**, demonstrating mastery of modern frontend frameworks and API contract design
- Architected flexible adapter pattern for headless CMS integration (Shopify/WordPress) with environment-driven configuration, showcasing scalable software design principles

VR Experience Recommendation System | *Python, TensorFlow, Flask, Machine Learning*

2025

- Implemented hybrid collaborative filtering and content-based recommendation engine using **TensorFlow** and cosine similarity, achieving **20–25% improvement** in F1 score and precision metrics
- Built **Flask REST API** with batch inference and query caching mechanisms, optimizing response times for high-frequency requests

Healthcare Concept Mapping Toolkit | *Python, NetworkX, FastAPI, Data Visualization*

2025

- Developed production-ready toolkit for analyzing complex healthcare datasets through concept mapping, MDS, and hierarchical clustering algorithms
- Created interactive **Plotly** visualizations and **FastAPI** endpoints to surface data-driven insights, transforming qualitative research into quantifiable patterns for decision-makers

CourseInsights – Survey Analysis Platform | *Python, Flask, Pandas, Data Processing*

2025

- Built full-stack web application to automate course survey analysis, processing CSV responses into structured PDF reports using **Flask** backend and **Pandas** for data transformation
- Streamlined instructor workflows with intuitive UI, demonstrating end-to-end product development from user requirements to deployment

Webability – Accessibility Widget | *JavaScript, CSS, WCAG/ADA Compliance*

2024

- Developed accessibility widget ensuring WCAG and ADA compliance with features including adjustable font sizes, high-contrast modes, keyboard navigation, and screen reader support
- Designed flexible, user-friendly interfaces with **CSS** to meet diverse accessibility needs while optimizing performance by minimizing JavaScript bundle sizes for fast load times

TECHNICAL SKILLS

- **Languages:** Java, Go, TypeScript, Python, C++, JavaScript, SQL, HTML/CSS
- **Backend & APIs:** RESTful API Design, Express.js, Flask, FastAPI, Node.js, GraphQL, Microservices
- **Frontend Frameworks:** React, Redux, Next.js, Server-Side Rendering, Responsive Design
- **Data & Storage:** SQL (PostgreSQL, MySQL), NoSQL, Cassandra, Elasticsearch, Spark, Data Pipelines
- **Cloud & DevOps:** AWS (EC2, S3), Docker, CI/CD (GitHub Actions), Linux, Slurm, Cloud Architecture
- **ML/AI Frameworks:** TensorFlow, PyTorch, scikit-learn, NetworkX, Plotly
- **Development Tools:** Git/GitHub, Gradle, Jira, Confluence, Agile/Scrum, Test-Driven Development