

# Arminder Badhan

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**Full-Stack Software Developer | Technical Program Manager | Robotics & Embedded Systems | AI/ML Project Builder**

## PROFESSIONAL SUMMARY

Software Developer and Technical Program Manager with experience shipping production web applications, full-stack REST API projects, robotics programming workflows, and AI/computer vision systems. Built and deployed live Next.js/TypeScript websites with GitHub/Vercel CI/CD, developed backend applications with authentication, RBAC, database persistence, and layered service logic, and led client-facing technical programs from requirements discovery through delivery. Strong at translating ambiguous stakeholder needs into technical scope, debugging hardware/software integrations, documenting systems, and building practical software across web, backend, embedded, and AI workflows.

## CORE TECHNICAL SKILLS

**Languages:** Java, C#, Python, JavaScript, TypeScript, HTML5, CSS3, C/C++, Arduino-style C, Assembly

**Backend & APIs:** Spring Boot, Node.js, Express.js, REST APIs, authentication, RBAC, service-layer architecture

**AI & Robotics:** OpenCV, YOLOv8, Q-learning, reinforcement learning, NumPy, Matplotlib, PyTorch, TensorFlow

**Frontend:** React, Next.js, React Native, Redux, Tailwind CSS, responsive UI, accessibility, SEO metadata

**Data & Infra:** MongoDB Atlas, H2 Database, JDBC, Git/GitHub, Vercel CI/CD, Expo CLI, Docker, Tableau

**Hardware:** Microcontrollers, sensors, robotics platforms, Bluetooth control, CAD/3D printing, circuit debugging

## PROFESSIONAL EXPERIENCE

### Technical Program Manager & Lead Instructor,

Institute of Robotics & Intelligent Systems (IRIS Canada) - *Mississauga, ON*

**Feb 2024 - Jan 2026**

- Led technical program delivery for robotics, coding, 3D printing, and STEM workshops across educator, classroom, and school-board environments.
- Gathered client and educator requirements, translated them into workshop scope, curriculum plans, technical setup guides, and delivery workflows.
- Collaborated with Java and IoT-focused staff to assess feasibility, prepare hardware/software environments, evaluate constraints, and support delivery under tight timelines.
- Built and maintained a WPILib-based Java robot control project using Git/GitHub to teach real-world robotics programming workflows to high-school teams.
- Delivered technical instruction covering Java OOP, Git/GitHub, Scratch logic, micro:bit, Arduino-style programming, sensors, robotics hardware, and debugging workflows.
- Created documentation, troubleshooting procedures, and setup guides to standardize technical delivery across multiple learning environments.

### Full-Stack Web Developer (Contract), Magnetic

Flashback Photobooth - *Remote*

**Aug 2023 - Present**

- Built and deployed a production Next.js/TypeScript website for a client business using React, Tailwind CSS, GitHub, and Vercel CI/CD.
- Implemented responsive UI components, SEO metadata and page structure, optimized images, accessibility improvements, cross-device layouts, and deployment workflows.
- Worked directly with the client to gather requirements, prioritize features, troubleshoot production issues, and translate business goals into user-facing improvements.
- Live production site: [magneticflashbackphotobooth.ca](https://magneticflashbackphotobooth.ca)

## SELECTED SOFTWARE PROJECTS

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### **Penny Pathway** | *Next.js, TypeScript, React, Tailwind CSS, Vercel* | [Live Site](#)

- Built and deployed a personal finance web application focused on making common financial calculations easier to understand and use from a browser.
- Implemented reusable UI components, calculator workflows, input validation, responsive layouts, and clean result summaries for practical personal-finance decision support.
- Positioned as an independent product-style project to demonstrate frontend product design, deployment discipline, domain-focused UX, and iterative feature development.

### **Warehouse Inventory Management API** | *Spring Boot, Java, REST APIs, H2, JDBC* | [Source Code](#)

- Built a Spring Boot REST API backend for inventory management with RBAC, database-backed CRUD workflows, structured exception handling, and layered service logic.
- Designed relational data models and implemented controller/service/data-access workflows to support account, inventory, and permission-based operations.

### **Mobile Inventory & Game Deals Applications** | *React Native, Expo CLI, Redux, Node.js, Express.js, MongoDB Atlas*

- Developed cross-platform mobile applications with authentication, multi-screen navigation, persistent Redux state, REST API integration, and MongoDB Atlas-backed CRUD workflows.
- Integrated third-party game-deals data and structured client-side state management for query results, inventory operations, and user flows.

### **Real-Time Object Detection System** | *Python, YOLOv8, OpenCV, NumPy*

- Built a computer vision project for real-time object detection using YOLOv8 and OpenCV with live video processing, bounding boxes, confidence scoring, and FPS-focused optimizations.

### **Chess Reinforcement Learning Agent** | *Python, Q-Learning, Stockfish, Tkinter, python-chess*

- Developed a chess reinforcement learning project using tabular Q-learning, epsilon-greedy exploration, Stockfish-based gameplay feedback, persistent Q-table serialization, and a Tkinter GUI.

## EDUCATION

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### **B.Sc. (Honours) in Computer Science**, Trent

**In Progress**

University - *Peterborough, ON*

- Advanced-entry Computer Science student building on prior college transfer credits; coursework includes data structures, algorithms, web development, computer organization, and data mining.

### **Advanced Diploma in Computer Programming and**

**Graduated 2024**

**Analysis**, Humber College - *Toronto, ON*

- Three-year advanced diploma covering full-stack development, systems programming, database design, software engineering fundamentals, and applied technical projects.

## ADDITIONAL TECHNICAL STRENGTHS

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- Comfortable working across client communication, product requirements, software implementation, technical documentation, and deployment workflows.
- Experience connecting web, backend, AI/computer vision, robotics, microcontroller, and instructional technology work into practical deliverables.