

# Timothy Roch

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[GitHub: github.com/timothyroch](https://github.com/timothyroch) • [Portfolio: timothyroch.github.io](https://timothyroch.github.io) • [LinkedIn: linkedin.com/in/timroch](https://linkedin.com/in/timroch)

## About Me

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I am a passionate software engineering student with a strong foundation in AI, blockchain, and full-stack development. As the Co-Lead of the ADCS Division at Space Concordia, I thrive in collaborative, high-impact projects and innovative problem-solving. My experience working with startups in AI-driven medical services and personal finance has sharpened my ability to build cutting-edge solutions.

Explore my projects at [timothyroch.github.io](https://timothyroch.github.io) to learn more!

## EDUCATION

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### Student in Software Engineering

Concordia University, Montreal, QC

- CGPA: 4.24

## TECHNICAL SKILLS

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- Programming Languages: C (2 yrs), Kotlin (1 yr), Python (3 yrs), PHP (2 yrs), Solidity (1 yr), Go (2 yrs), C++ (2 yrs), Swift (2 yrs), R (2 yrs), JavaScript (4 yrs), Java (2 yrs)
- Web Development: HTML, CSS, JavaScript (React, Node.js), PHP
- Blockchain: Solidity, Smart Contracts, Ethereum Development
- AI & Data Science: Machine Learning (Python, R), Computer Vision, AI Model Deployment
- Tools & Frameworks: Git, Docker, SQL, REST APIs

## EXPERIENCE

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### Space Concordia – Project Contributor 2024 - Today

- Collaborated on projects aimed at applying innovative technology in space research.
- Developed software modules to aid in mission planning and data analysis, demonstrating strong problem-solving skills in a technical team environment.

### Co-Lead, ADCS Division 2024 - Today

- Oversaw and coordinated initiatives within the ADCs division, driving collaboration and technical innovation.
- Managed projects that integrated cutting-edge technology solutions, and mentored team members in coding best practices and agile methodologies.

## Administration Council Member 2024 - Today

### *La Caisse Le manoir Desjardins*

- Participated in high-level administrative decision-making, contributing to the strategic planning and execution of organizational projects.
- Developed skills in communication, teamwork, and leadership through collaborative problem-solving and policy development.

## Startup Involvement 2023 - Today

- **Medical Services AI Startup:** Working part-time to develop innovative AI-driven solutions for medical services, including research, prototyping, and implementation of algorithms to improve patient care and service efficiency.
- **Personal Finance AI Startup:** Contributing to a startup aimed at utilizing AI for personal finance management, including developing software features, analyzing user data, and optimizing decision-making algorithms.

## SELECTED PROJECTS

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### *AI Sign Language Interpreter*

Developed an **AI-powered tool** that recognizes and translates **sign language gestures in real time**, enhancing accessibility for the deaf and hard-of-hearing community. Built using **computer vision and machine learning**, the model accurately detects hand movements and converts them into text. Optimized for **real-time performance** to ensure seamless interaction.

### *Luminex Cryptocurrency*

Designed a **next-gen cryptocurrency** leveraging **blockchain technology** to achieve **scalability, security, and decentralization**. Integrated **Layer-2 rollups, sharding, and zero-knowledge proofs** to enable **fast transactions, low fees, and robust security** for dApps and financial systems. Developed smart contracts and cryptographic mechanisms to ensure privacy and integrity.

### *Decentralized Medical Records System*

Built a **blockchain-based decentralized application (dApp)** to securely store and manage **patient medical records**. Ensured **data privacy and ownership** using encryption and decentralized storage solutions, allowing patients to control access to their healthcare data. Designed an intuitive interface for ease of use by healthcare providers and patients alike.