# Musa Al-hassy<sup>PhD</sup>

Software Developer

✉ Canada

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## About me ───────

I am a polyglot programmer, with a PhD specialising in programming languages.

I currently lead a team developing forms software at WeeverApps, emphasising quality while balancing client goals.

I also love sports, martial arts, jogging, running, and tinkering with Emacs —I'm one of the topmost ELisp developers in Canada.

## Skills ───────

leadership, problem solving, critical thinking

Lisp, Haskell, Agda, Category Theory

JavaScript

VSCode, Emacs, Git

AngularJS, Vue, CSS, HTML

Rust, C, Frama-C, C#, F#, OCaml, Coq
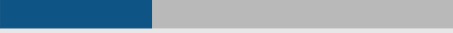
Python, Ruby, Clojure, SQL/Prolog
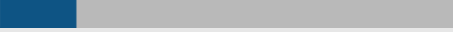
⟦ The skill scale is from "Fundamental Awareness" to "Expert". ⟧

## Experience

| Currently | JavaScript Team Lead | WeeverApps |
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◇ Remotely manage a team of 5 developers; including assigning them tasks, reviewing their code, and providing opportunities for professional development.
◇ Host standups, retrospectives, sprint planning, backlog grooming sessions, and maintain a set of metrics for my team.
◇ Wrote internal tools to perform weekly deploys and other regularly occuring tasks —estimated to save $\sim 20$ monthly hours in tedious labour.
◇ Refactored a significant system to be more composable by introducing subscription mechanisms.
◇ Formally employed as "Engineering Manager" for $\sim 1$ year.
  – Pushed for quality initiatives, including unit testsing, E2E testing, extensive documentation, and automation.
  – Wrote scripts to ping the Jira API to quickly summarise progress of 5 dev teams.
  – Organized training sessions and held Team Lead Standups.
  – Explored various project methodologies, including agile with story points.

| 2020 | Research Engineer | McSCert |
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Reorganised a theory of delta lenses using a terse categorial presentation, aiming at a categorial foundation for Machine Learning.

| 2017 | Computer Science Lecturer | McMaster University |
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◇ Taught "Discrete Math with Applications" and "Specifications and Correctness".
◇ Wrote a variety of programs to assist in grading, in presenting content, and in reifying theoretical languages in concrete ones (e.g. wrotes DSLs in C and Agda to implement Dijkstra's GCL).
◇ Ran multiple feedback sessions where students could request learning material topics —resulting in a 95% approval rating from the students in their evaluation.

| 2015 | Software Team Lead | Blocher Consulting |
|---|---|---|

◇ Project lead for maintenance software for the Department of Defence and responsible for architecturing an optimal equipment-lifetime system.
◇ Wrote code contracts complemented by unit and integration tests as well as a functional programming approach in C# aiming at accessibility, extensibility, and reduction of technical debt.
◇ The resulting system allowed the Department of Defence to reduce substantial costs.
◇ Applied the theory of monads to solve issues regarding code clarity and to reduce its density and complexity for another dev-team.

## Education

| 2021 | Ph.D. Computer Science | McMaster University |
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*A 'do-it-yourself' module system for dependently-typed programming languages*

| 2015 | M.Sc. Computer Science | McMaster University |
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*A Mechanisation of Internal Galois Connections In Order Theory Formalised Without Meets*

| 2013 | Hon. B.Sc. Mathematics and Computer Science | McMaster University |
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