

# Jacob Leach

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## Education

2018 High School, 4.0 GPA

2018 - 2022 B.S. in Computer Science and Mathematics (expected)

## Projects

2019 [Constructive reals using Cauchy sequences](#) in Agda.

- Formalised real numbers in a Agda constructively.

2018 [Data parallel 2D heterogeneous explicit heat flow simulation and graph](#) in haskell.

- Simulates the Heat equation with an explicit method
- Employs AccelerateHs native LLVM backend for Data Parallelism

2018 [Personal website written in Haskell.](#)

- Built web server on Servant
- Webpage generation from custom Markup language parsed using Parsec

## Activities

2019 Contributions to [Agda's standard library](#).

- Defined algebraic morphisms for Rings and Groups
- Proved homomorphisms between varying rational constructions
- Completed algebraic properties for rational numbers

2018 Placed 4th at state level University Interscholastic League programming competition

## Skills

Languages Haskell (1 year), C++ (4 years), productive in Java, Lua, C, Python and Lisp

Math Agda (1 month), Constructive Analysis

Software Linux(4 years), Emacs, git

References provided on request

Last revised: 2019-01-25