

# Joel Gustafson

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I want to make the internet a more humane and robust medium.

## Education

- Massachusetts Institute of Technology (2014–2018)
- Bachelor of Science in Math with Computer Science
- Coursework in algebra, complexity, cryptography, compilers, symbolic systems, fabrication, and magic

## Experience

- MIT Media Lab (2015): worked on a document editor for an open academic publishing platform
- MIT CSAIL (2016): worked with professors Gerry Sussman and Jack Wisdom on a visual, interactive Scheme programming environment for a computational physics class
- Notion Labs, Inc (2017): independently designed and implemented a user-facing DSL for computing on structured data in a note-taking application
- Protocol Labs (2018–present): working with the MIT Knowledge Futures Group as the primary technical researcher for the Underlay, a distributed knowledge graph

## Background

- TypeScript, Go, MIT Scheme
- React, Webpack, Next.js, Prisma, etc
- Decentralized web & p2p technologies: IPFS, DHTs, CRDTs
- Semantic web & linked data paradigms: RDF, JSON-LD, etc
- Basic abstract algebra, complexity theory, category theory
- Basic cryptography: elliptic curves, zk-snarks, FHC, MPC
- Computing history: Engelbart/Kay/Nelson/Papert/Minsky/etc

## Projects

- The MIT Scheme kernel for Jupyter notebooks
- A collaborative p2p markdown editor
- A fully homomorphic virtual machine for the Brainfuck language
- An incredibly fast RDF triplestore with a novel query interface