

Lucas Eduardo Morales

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Topics

Artificial Intelligence	Distributed Systems	Performance Engineering
<ul style="list-style-type: none">Program inductionGenerative modelsBayesian inferenceConvex optimizationMonte Carlo methods	<ul style="list-style-type: none">NetworksConsistencyDecentralizationFault-toleranceBlockchain	<ul style="list-style-type: none">ProfilingControl flow optimizationCache optimizationStrong SpecificationsType theory

Education

Massachusetts Institute of Technology <i>Master of Engineering in Artificial Intelligence</i> <i>Bachelor of Science in Computer Science and Engineering</i>	Cambridge, MA 2018 2017
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Experience

Bridgewater Associates - Technology Associate Westport, CT 2018

MIT Computational Cognitive Science Group Cambridge, MA
Researcher 2016-2018

- (THESIS) Formalized a computational account of concepts and cognition based on: conceptual role semantics; program induction; type constraints; Bayesian sampling and inference; and information theory. docs.lucasem.com/thesis
- (NIPS paper) Designed, implemented, and experimented with a neurally-guided Bayesian program learning system that induces domain-specific languages for programming tasks.

MongoDB New York, NY
Software Engineering Intern 2016-2017

- Designed and implemented the command-line tool for interacting with MongoDB Stitch, a backend-as-a-service.
- Implemented complex conditional readability in aggregation pipelines for user-based data restrictions.
- Designed and implemented new features for dumping, restoring, monitoring, and benchmarking MongoDB instances.

The Computational Fabrication Group - MIT CSAIL Cambridge, MA
Software Engineer, Undergraduate Researcher 2015

- Designed and implemented a distributed computing system with an interface intended for execution of functional material mappings on 3D geometries to yield input for multi-material 3D printers.
- Created a concurrent collaborative web-based framework for multi-material 3D model design.

edX Cambridge, MA
Software Engineer 2014

- Developed a drag-and-drop problem type and accompanying problem builder.
- Improved error handling to prevent silent failures and present tracebacks when using the SDK.

Open Source Community The Internet
Contributor 2014-2018

- lucasem/lambda-CL – Created and maintain a tool to convert between expressions of λ -calculus and combinatory logic.
- lucasem/workerpool – Created and maintain a Rust library for worker-based parallelization.
- lucasem/escaper – Created and maintain a Go library for highly configurable format strings.
- lucasem/sdas – Co-created a web-based simulator for synchronous distributed algorithms.
- rust-lang/rust – Improved standard library documentation for synchronization primitives.
- kynelee/argen – Co-created a tool for generating argument-parsing logic in C.
- ... and many more projects!

MIT MedLinks - Residential Director Cambridge, MA 2015-2017

SigEp MA Delta Chapter - President Boston, MA 2015-2016

Relevant Coursework

- 18.408 - Algorithmic Aspects of Machine Learning
- 9.S915 - Probabilistic Computing
- 9.520 - Statistical Learning Theory and Applications
- 6.824 - Distributed Computer Systems Engineering
- 6.172 - Performance Engineering of Software Systems

Languages

- C
- Go
- Scala
- Haskell
- Scheme
- C++
- Rust
- OCaml
- Python
- Javascript