

# Charlie Gagnon

[chgagnon.github.io](https://chgagnon.github.io) ◇ [github.com/chgagnon](https://github.com/chgagnon) ◇ (508) 654 5359 ◇ [charles\\_gagnon@alumni.brown.edu](mailto:charles_gagnon@alumni.brown.edu)

## EDUCATION

### Brown University

Sc.B. – Computer Science, *magna cum laude*

September 2018 - May 2022

Providence, RI

## EXPERIENCE

### MathWorks

Senior Associate Engineer

July 2022 - Present

- In the **MATLAB Coder Language** team, added [code generation](#) support for [MATLAB's .? operator](#), enhanced code motion optimizations for compatibility with [profiling tools](#), and analyzed memory use in definite assignment analysis.
- In the **Simulink Design Verifier** team, improved [property-proving](#) decidability for enabled subsystems in Simulink.
- In the **HDL Coder** team, implemented timing-slack calculations and multiple path analysis for [pre-synthesis critical path estimation](#) on hardware models designed in Simulink.
- In the **Deep Learning Coder** team, added IR constructs for tensor pooling, improving type safety and extensibility.
- Leading the **DTA Support** team, coached more than 40 team members to advance their technical knowledge and operational skills, optimized processes for knowledge sharing, and redesigned team performance metrics. Supported customers using [external language interfaces](#), [external hardware](#), and [server products](#), via phone and email.
- Leading the **SIT Plan** team, designed and implemented a CI/CD system for training course code and solutions, and authored internal training materials on server products used by hundreds of new hires worldwide.
- Led technical interviews for more than 30 engineering applicants, assessing work experience and programming skills.

### MathWorks

Software Engineering Intern

May 2021 - September 2021

- In the **Cloud Platform** team, developed a log anomaly detection and remediation system for Kubernetes apps, coordinating Fluent Bit, Elasticsearch, and AWS Lambda to discard unhelpful log files.

### National Park Service

Virtual Student Intern

September 2020 - May 2021

- Designed a machine learning and vision system to classify and count [colonial nesting birds in Biscayne National Park](#).
- Team of 3 selected as **Team Project of the Year, 2021**, from a pool of more than 3,000 interns.

### Brown University

Teaching Assistant & Tutor

October 2019 - May 2022

- Within the **Computer Science Department**, guided students at weekly code and conceptual hours, responded to student questions on course forum pages, and revised assignments and solution code.
- As a **Sheridan Center** tutor, prepared and delivered weekly lessons for multiple groups of five students in introductory statistics, multivariable calculus, and physics.

## SKILLS & SELECTED COURSEWORK

- **Languages:** C++, C, Rust, Python, MATLAB, Verilog, Java, Scala, Lisp, OCaml
- **Tools:** Git, Perforce, Kubernetes, Docker, NumPy, pandas, TensorFlow, Simulink,  $\text{\LaTeX}$ , Vim, Emacs, Unix/Linux
- **Systems Courses:** Compilers, Programming Languages<sup>†</sup>, Operating Systems<sup>\*†</sup>, Networks, Architecture
- **Modeling Courses:** Machine Learning, Info & Learning Theory<sup>\*</sup>, Computational Statistics<sup>\*</sup>, Vision, Graphics

## ENGAGEMENT & AWARDS

<sup>\*</sup> graduate level, <sup>†</sup> teaching assistant

### Brown University Band

Vice President

Nov. 2019 - Nov. 2020

- Set event schedule, prepared marching forms for [field and ice shows](#), and represented the Band to Brown Athletics.

### National Merit Scholar

May 2018

### MA Speech & Debate State Champion

April 2017

Student Congress