

Noble Mushtak

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EDUCATION

Northeastern University

05/2023

Khoury College of Computer Sciences

Bachelor of Science in Computer Science and Maths

Boston, MA

GPA: 4.0/4.0

TECHNICAL SKILLS

Languages: C, C++, Coq, OCaml, Java, Latex, Python, Rust *Familiar:* Bash, Haskell, HTML, CSS, JavaScript, Scala

Developer Tools: Android Studio, Emacs, Git, Google Apps Script, GDB, GitHub Pages, IntelliJ IDEA

Libraries and Frameworks: Beamer, Django, Firebase, Jekyll, Sage, Qt5

WORK EXPERIENCE

Software Engineer Intern

05/2022 – 08/2022

Snowflake

San Mateo, CA

- Implemented the semantics of a conversion from a decimal fixed-point number type to an IEEE 754 binary floating-point number type in a SQL programming language
- Read an academic paper about the Eisel-Lemire algorithm for parsing floating-point numbers and implemented the algorithm to improve the efficiency of the conversion
- Co-authored a technical note with Prof. Daniel Lemire about proving the Eisel-Lemire algorithm correct for all 64-bit significands using the theory of continued fractions

Research Assistant

05/2021 – Present

Northeastern University

Boston, MA

- Coauthored a published academic paper with Prof. Amal Ahmed and two graduate students presenting a novel method for verifying sound language interoperability
- Developed a large Coq project which verified a type soundness proof for a multilanguage using logical relations
- Won third-place in the undergraduate division of POPL 2022's Student Research Competition
- Currently working on a Coq project to formally verify type soundness for RichWasm, a version of WebAssembly with an enriched type system for supporting safe shared memory interoperability

Software Engineer Intern

06/2017 – 08/2017, 06/2018 – 08/2018, 06/2019 – 08/2019

Spin Analytical

Berwick, ME

- Coded multiple Qt5 GUI programs for Raspberry Pi using C++ and Boot2Qt
- Developed multithreaded Qt5 application for a custom drug synthesis instrument
- Wrote 20-page user manual in LaTeX

PUBLICATIONS

Noble Mushtak and Daniel Lemire. "Fast number parsing without fallback." In: *Software: Practice and Experience*. DOI: <https://doi.org/10.1002/spe.3198>.

Daniel Patterson, Noble Mushtak, Andrew Wagner, and Amal Ahmed. "Semantic soundness for language interoperability." In: *Proceedings of the 43rd ACM SIGPLAN International Conference on Programming Language Design and Implementation (PLDI 2022)*. DOI: <https://doi.org/10.1145/3519939.3523703>

ACTIVITIES

Competitive Programming

12/2014 – Present

- Developed proficiency in mathematical and algorithmic problem-solving through programming contests
- Organized a team of three people to represent Northeastern University in ACM-ICPC, the largest worldwide university-level programming competition
- Placed 86th in the world at ACM-ICPC World Finals 2021
- Reached Meta Hacker Cup 2022 Round 3 and placed 145th out of 27604 overall contestants

Northeastern Putnam Team

09/2019 – 05/2023

- Attended weekly meetings where students solved past problems from the Putnam Competition, the principal mathematics competition for undergraduate students in the United States and Canada
- Placed 150th out of 2975 students in Putnam 2021, 164th out of 3415 students in Putnam 2022