Noble Mushtak

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Education

Northeastern University 09/2019 – Present
Khoury College of Computer Sciences *Expected 05/2023*
Pursuing Bachelor of Science in Computer Science and Maths *Boston, MA*
GPA: 4.0/4.0
Undergrad Courses: Compilers, Theory of Computation, Object-Oriented Design, Real Analysis
Graduate Courses: Algebra I, Topology I, Advanced Algorithms

Marshwood High School 09/2015 – 05/2019
High School Valedictorian *South Berwick, ME*

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

Research Assistant 05/2021 – Present
Northeastern University *Boston, MA*
- Collaborating with Prof. Amal Ahmed and two graduate students on an academic paper presenting a novel method for verifying sound language interoperability
- Developed a Coq project with >20,000 lines of code which formally verified a type soundness proof for a multilanguage using logical relations
- Selected to present ongoing research to judges and attendees at an academic conference in POPL 2022's Student Research Competition

Teaching Assistant 01/2020 – 04/2020, 09/2020 – 04/2021
Northeastern University *Boston, MA*
- Held office hours and graded homeworks for Fundamentals of CS I course
- As head TA, regularly prepared and gave mini-lectures to ≈50 students in labs

Undergraduate Researcher 05/2020 – 06/2020
Northeastern University *Boston, MA*
- Participated in Northeastern Summer Math Research Program 2020
- Applied linear algebra and graph theory to write Sage program which found graphs exhibiting fractional cospectrality, a property about eigenvalues of adjacency matrices which has applications in quantum mechanics
- Wrote 58-page paper in LaTeX explaining results, including several proofs

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

Projects and Activities

Competitive Programming and Mathematics 12/2014 – Present
- Developed proficiency in mathematical and algorithmic problem-solving through programming and math contests
- Placed 192nd out of 4229 students with a score of 39/120 in the 2019 Putnam competition, the principal mathematics competition for undergraduate students in the United States and Canada
- Organized a team of three people to represent Northeastern University in ACM-ICPC, the largest worldwide university-level programming competition
- Placed 20th at ACM-ICPC North America Championship 2021 (team contest)
- Reached Google Code Jam 2021 Round 3 and placed 562nd in the world, out of 37398 overall contestants

Permit Log App 01/2017 – 12/2018
- Worked with two peers to develop Android app using Android Studio, Java, and Firebase to help Maine learner's permit holders track their hours of required driving practice
- Won first place in Maine App Challenge 2017 (team contest)
- Maintained app on Google Play Store for two years, with over 6000 users at peak