

# Noble Mushtak

<http://noblemushtak.com>  
[noblemushtak.public@gmail.com](mailto:noblemushtak.public@gmail.com)

## EDUCATION

### NORTHEASTERN UNIVERSITY

#### BS IN COMPUTER SCIENCE

Expected May 2023 | Boston, MA  
Computer Science and Maths Major  
Khoury College of Computer Science  
GPA: 4.0/4.0

### MARSHWOOD HIGH SCHOOL

Grad. May 2019 | Eliot, ME  
Class Valedictorian

## LINKS

Github:// [Noble-Mushtak](#)  
LinkedIn:// [noble-mushtak](#)  
CodeForces:// [Noble\\_Mushtak](#)  
CodeChef:// [noble\\_mushtak](#)

## COURSEWORK

### GRADUATE

Topology I  
Algebra I  
Advanced Algorithms

### UNDERGRADUATE

Compilers  
Theory of Computation  
Object-Oriented Design  
Number Theory 2  
Real Analysis  
Linear Algebra

## SKILLS

### PROGRAMMING

C • C++ • Coq • OCaml • Java • Python  
• Rust  
Familiar:  
Bash • Haskell • HTML • CSS  
• JavaScript • x86 Assembly

### SYSTEMS

Windows • Mac OS • GNU/Linux  
• Android

### TOOLS

Emacs • Git • LaTeX • IntelliJ IDEA  
Familiar:  
Android Studio • Beamer • Django  
• Firebase • Google Apps Script  
• GitHub Pages • Jekyll • Sage  
• Qt5

## EXPERIENCE

### NORTHEASTERN UNIVERSITY | RESEARCH ASSISTANT

May 2021 - Dec. 2021 | Boston, MA

- Researching sound interoperability between programming languages with Professor Amal Ahmed
- Collaborating with Prof. Ahmed and two graduate students on an academic paper presenting a novel method for verifying sound language interoperability
- Formalized a type soundness proof for a multilanguage using logical relations in Coq

### NORTHEASTERN UNIVERSITY | TEACHING ASSISTANT

Jan. - Apr., Sep. 2020 - Apr. 2021 | Boston, MA

- Held office hours and graded homeworks for Fundamentals of CS I course
- For spring 2021, served as a head TA in leading labs where students work on programming problems

### NORTHEASTERN UNIVERSITY | STUDENT RESEARCHER

May - Jun. 2020 | Boston, MA

- Participated in Northeastern Summer Math Research Program 2020
- Collaborated with a fellow undergraduate and a graduate student to find graphs exhibiting fractional cospectrality, a concept related to linear algebra, graph theory, and quantum mechanics
- Wrote 58-page paper in LaTeX explaining results, including several proofs

### SPIN ANALYTICAL | PROGRAMMING INTERN

Jun. - Aug. 2018, 2019, 2020 | Berwick, ME

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

## PROJECTS AND ACTIVITIES

### COMPETITIVE PROGRAMMING

Dec. 2014 - Present

Participated in several online programming competitions in high school and university. In 2021, organized a team of three people to compete in ICPC North America, placing 20th at North America Championship 2021. Currently master on CodeForces and 5-stars on CodeChef.

### PERMIT LOG ANDROID APP

Jan. 2017 - Dec. 2018

Worked with two fellow high school students to create mobile app to help Maine learner's permit holders track hours of required driving practice. Won first place in Maine App Challenge 2017. Maintained app on Google Play Store from Feb. 2017 to Dec. 2018, with over 6,000 users at peak.

## AWARDS

- |      |  |
|------|--|
| 2017 | Winner of Maine App Challenge 2017                               |
| 2019 | Placed 192nd out of 4229 students in Putnam 2019 (scored 39/120) |
| 2021 | Qualified for and placed 562nd in Google Code Jam Round 3        |
| 2021 | 20th-place team in ICPC North America Championships 2021         |