Hasti Toossi

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Education

University of Toronto Sep 2020 – June 2024
Honours Bachelor of Science with High Distinction *Toronto, Canada*

- Computer Science Specialist, Mathematics Major, Linguistics Minor
- *Relevant Courses:* Graduate Course on Computational Complexity (A+), Principles of Programming Languages (A+), Advanced Algorithm Design (A+), Compilers and Interpreters (A+), Abstract Algebra (A-)

Sharif University of Technology Sep 2019 – Jul 2020
Bachelor of Science in Computer Science (attended for 1 year before transferring to Univ. of Toronto) *Tehran, Iran*

Research Interests

- *Theoretical Computer Science*, in particular *Complexity Theory* and *Randomized Algorithms*
- *Programming Language Theory*, in particular *Type Theory* and *Compilers*

Publications

Bidirectional Type Checking for Existential Types with Higher-Rank Polymorphism
Hasti Toossi, Ningning Xie *ESOP 2026 (under review: awaiting final notification)*

A Reproducibility Study on Quantifying Language Similarity: The Impact of Missing Values in the URIEL Knowledge Base *NAACL 2024 Student Research Workshop*
Hasti Toossi, Guo Qing Huai, Jinyu Liu, Eric Khiu, A. Seza Doğruöz, En-Shiun Annie Lee

Predicting Machine Translation Performance on Low-Resource Languages: The Role of Domain Similarity *EACL 2024 Findings*
Eric Khiu, Hasti Toossi, David Anugraha, Jinyu Liu, Jiaxu Li, Juan Armando Parra Flores, Leandro Arcos Roman, A. Seza Doğruöz, En-Shiun Annie Lee

Research Experience

University of Toronto Jan 2024 – Present
Research Assistant, advised by Professor Ningning Xie *Toronto, Canada*

- Designed an algorithmic type system which combines strong existential types, higher-rank polymorphism, and polymorphic subtyping.
- Wrote complete proofs of the properties and correctness of this type system.
- Implemented a Haskell type-checker for this type system.
- Wrote a first-author technical paper about this type system, which is currently under review at ESOP 2026.

University of Toronto May 2023 – Apr 2024
Research Assistant, advised by Professor Annie En-Shiun Lee and Professor A. Seza Doğruöz *Toronto, Canada*

- Worked on two research projects:
  1. Trained (linear and non-linear) regression models to predict the performance of machine translation of low-resource natrual languages according to certain criteria. Results published in EACL 2024 Findings.
  2. Wrote a study identifying and quantifying areas of improvement of an existing tool, URIEL, which quantifies the similarities of natural languages. Results published in LREC 2024 Student Research Workshop.
- Ran experiments in Python (using Pandas, SciPy, ScikitLearn), analyzed and visualized results (using MatPlotLib).

Teaching Experience

University of Toronto May 2024 – Aug 2024
Teaching Assistant for "Principles of Programming Languages" *Toronto, Canada*
- Designed assignments and test suites in Racket and Haskell for future semesters.

University of Toronto Jan 2024 – Apr 2024
Teaching Assistant for "Principles of Programming Languages" *Toronto, Canada*
- Automated testing for 12 assignments (for 270 students) using Bash, Racket and Haskell.
- Led two weekly labs (40 students each).
- Assisted in grading midterms and final exams (for 270 students).

University of Toronto Mississauga Sep 2023 – Dec 2023
Teaching Assistant for "Algorithm Design & Analysis" *Mississauga, Canada*
- Led weekly tutorials (40 students) and weekly office hours.
- Assisted in grading final exams (for 250 students).

Industry Experience

PolyAI Sep 2024 – Present
Software Engineer III / Forward Deployed AI Engineer III *Toronto, Canada*
- Built AI voice assistants for the customer service needs of clients in various industires, primarily healthcare.
- Wrote and tested Python code according to client requirements; integrated third-party REST APIs.
- Developed a code generation tool for third-party API integrations using Jinja.
- Communicated with clients regarding telephony integrations and business requirements.
- Worked closely with team members and mentored new joiners.

Community Involvement and Volunteering

Community Responder, PolyAI 2025 – Present, Canada
Farsi School Teacher, Iranian Association at the University of Toronto 2024, Canada
Executive of Tech and Design, Iranian Association at the University of Toronto 2023 – 2024, Canada
Code Knock Contest Organizer, Sharif University of Technology 2019 – 2020, Canada
Tutor for the Olympiad in Informatics, Farzanegan 1 High School 2019 – 2020, Canada

Awards and Honours

Dean's List Scholar University of Toronto, 2024
Awarded to students with a cGPA of 3.5 or higher.

University of Toronto Excellence Award (CA$7,500) University of Toronto, 2024 (Declined)
Awarded to students conducting research projects on the basis of academic excellence and research aptitude.

The Professor D. O. Robson Scholarship (CA$1,000) Victoria College at University of Toronto, 2023
Awarded to students with an annual GPA of 3.5 or higher.

The Regents In-Course Scholarship (CA$1,000) Victoria College at University of Toronto, 2022
Awarded to students with an annual GPA of 3.5 or higher.

Competitions

International Collegiate Programming Contest (ICPC) 2023, Canada
Competed in East-Central North America (ECNA) regionals in a team representing the University of Toronto.

Iranian National University Entrance Exam (Konkour) 2019, Iran
Ranked 241st nationally out of 164,278 participants (Top 0.15%)

Iranian National Olympiad in Informatics (INOI)
Ranked 55th nationally out of approximately 10,000 participants (Top 0.55%) 2018, Iran
Ranked 72nd nationally out of approximately 10,000 participants (Top 0.72%) 2017, Iran
- Prepared by studying combinatorics, graph theory, data structures, algorithms, and C++ for 3 years.

Languages

Persian/Farsi: Native, **English**: Fluent (C2), **French**: Advanced (B2-C1)