

# ALI REZA IBRAHIMZADA

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## EDUCATION

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**University of Illinois Urbana-Champaign** **Illinois, USA**  
*Doctor of Philosophy in Computer Science; GPA: 4.00/4.00* *Aug 2022 - May 2027*  
*Thesis: Neuro-Symbolic Code Translation and Validation using Large Language Models*  
*Advisor: Reyhaneh Jabbarvand*

**University of Illinois Urbana-Champaign** **Illinois, USA**  
*Master of Science in Computer Science; GPA: 4.00/4.00* *Aug 2022 - Dec 2024*  
*Thesis: Bridging the Gap between Testing and Debugging through Explainable Deep Oracles*  
*Advisor: Reyhaneh Jabbarvand*

**Marmara University** **Istanbul, Turkey**  
*Bachelor of Science in Computer Engineering; GPA: 3.98/4.00* *Aug 2018 - Jul 2022*  
*Thesis: Depth Estimation of Stereo Images using Deep Learning*  
*Advisor: Mehmet Kadir Baran*

## HONORS AND AWARDS

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**School Nomination for the Two Sigma PhD Fellowship** *Nov 2024*  
Nominated by the Siebel School of Computing and Data Science at the University of Illinois Urbana-Champaign (top 1%)

**IEEE/ACM Student Research Competition** *Apr 2024*  
Ranked 3rd in IEEE/ACM Student Research Competition at International Conference on Software Engineering (ICSE) 2024

**Valedictorian of Class of 2022** *Sep 2022*  
Ranked 1st among roughly 1000 graduates in the Engineering Faculty and the Department of Computer Engineering at Marmara University

**Summa Cum Laude (High Honors)** *Sep 2022*  
Summa Cum Laude (High Honors) Award for graduating with 3.98 / 4.00 GPA at Marmara University

**Ray Ozzie Computer Science Fellowship** *Aug 2022*  
Full tuition waiver and monthly stipend during the first year of PhD program at the University of Illinois Urbana-Champaign

**The Best Senior Graduation Project of the Year** *Jun 2022*  
Our project “Depth Estimation of Stereo Images using Deep Learning” has been awarded The Best Graduation Project of the Year by the Department of Computer Engineering at Marmara University

**Academic Achievement Scholarship** *Jul 2019*  
100% tuition waiver in accordance with high GPA in 2019-2020, 2020-2021, and 2021-2022 academic years, awarded by Istanbul Sehir University & Marmara University

**Valedictorian of High School** *Jan 2017*  
Graduated as the Valedictorian in High School with 3.96/4.00 GPA, awarded by KEN

## PUBLICATIONS

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### Pre-prints

- P1. A. R. Ibrahimzada**, K. Ke, M. Pawagi, M. S. Abid, R. Pan, S. Sinha, and R. Jabbarvand, “*Repository-Level Compositional Code Translation and Validation*” [\[link to full paper\]](#)
- P2.** C. Liu, S. D. Zhang, **A. R. Ibrahimzada**, and R. Jabbarvand, “*CodeMind: A Framework to Challenge Large Language Models for Code Reasoning*”, arXiv preprint arXiv:2402.09664 [\[link to full paper\]](#)
- P3. A. R. Ibrahimzada**, Y. Chen, R. Rong, and R. Jabbarvand, “*Automated Bug Generation in the era of Large Language Models*”, arXiv preprint arXiv:2310.02407 [\[link to full paper\]](#)
- P4. A. R. Ibrahimzada**, K. Kosif, and A. Cakmak, “*Predicting Student Grades in Courses: A Clustering-Based Approach*” [\[email for pre-print\]](#)

### Conference Publications

- C1. A. R. Ibrahimzada**, “*Program Decomposition and Translation with Static Analysis*”, IEEE/ACM International Conference on Software Engineering Student Research Competition (ICSE SRC), Lisbon, Portugal, April 2024
- C2.** R. Pan\*, **A. R. Ibrahimzada\***, R. Krishna, D. Sankar, LP. Wassi, M. Merler, B. Sobolev, R. Pavuluri, S. Sinha, and R. Jabbarvand, “*Lost in Translation: A Study of Bugs Introduced by Large Language Models while Translating Code*”, IEEE/ACM International Conference on Software Engineering (ICSE), Lisbon, Portugal, April 2024
- C3. A. R. Ibrahimzada**, Y. Varli, D. Tekinoglu, and R. Jabbarvand, “*Perfect Is the Enemy of Test Oracle*”, The ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE), Singapore, Singapore, November 2022
- C4.** A. Cakmak, **A. R. Ibrahimzada**, S. Arıkan, H. Ayaz, S. Demirkol, D. Sonmez, M. T. Hakan, S. S. Turan, C. Horozoglu, O. Kucukhuseyin, B. Kiran, S. U. Zeybek, M. Baysan, and I. Yaylim, “*Predicting the Predisposition to Colorectal Cancer based on SNP Profiles of Immune Checkpoints Using Supervised Learning Models*”, VII. International Molecular Medicine Congress, Istanbul, Turkey, September 2019

### Journal Publications

- J1.** A. Cakmak, H. Ayaz, S. Arıkan, **A. R. Ibrahimzada**, Ş. Demirkol, D. Sönmez, M. T. Hakan, S. T. Sürmen, C. Horozoglu, M. B. Doğan, Ö. Küçüküseyin, C. Cacına, B. Kiran, Ü. Zeybek, M. Baysan, and İ. Yaylim, “*Predicting the predisposition to colorectal cancer based on SNP profiles of immune phenotypes using supervised learning models*”, Medical & Biological Engineering & Computing, Springer Berlin Heidelberg, Vol. 61, 243–258, 2023
- J2.** G. N. Sohsah, **A. R. Ibrahimzada**, H. Ayaz, and A. Cakmak, “*Scalable Classification of Organisms into a Taxonomy Using Hierarchical Supervised Learners*”, Journal of Bioinformatics and Computational Biology, World Scientific Publishing Co., Vol. 18, No. 05, 2020

## WORK EXPERIENCE

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**University of Illinois Urbana-Champaign**  
Graduate Research Assistant

**Illinois, USA**  
Aug 2022 - Present

- ❖ **LLMs for Code:** Working on Code LLMs for source code generation and understanding under the supervision of Reyhaneh Jabbarvand.

**IBM Research**  
Research Intern

**New York, USA**  
May 2024 - August 2024

- ❖ **Code Translation:** Working on repository-level code translation under the supervision of Saurabh Sinha and Reyhaneh Jabbarvand.

**IBM Research**

*Research Intern*

**New York, USA**

*May 2023 - August 2023*

- ❖ **Code Translation:** Working on applications of LLMs for code translation under the supervision of Saurabh Sinha, Rangeet Pan, Rahul Krishna, Raju Pavuluri, and Reyhaneh Jabbarvand.  
*Published in the IEEE/ACM ICSE in April 2024*

**University of Illinois Urbana-Champaign**

*Undergraduate Research Intern*

**Illinois, USA**

*May 2021 - Aug 2022*

- ❖ **Test Oracle Inference:** Design and development of an interpretable neural model to improve the performance of test oracles under the supervision of Reyhaneh Jabbarvand.  
*Published in the ACM Joint ESEC/FSE in November 2022*

**Marmara University**

*Undergraduate Researcher*

**Istanbul, Turkey**

*Jul 2021 - Jul 2022*

- ❖ **Depth Perception:** Developing and investigation of an attention-based neural model for estimating depth in stereo images under the supervision of Mehmet Kadir Baran.  
*Awarded the Best Senior Graduation Project of the Year in June 2022*

**Istanbul Technical University**

*Undergraduate Researcher & Research Intern*

**Istanbul, Turkey**

*Jun 2020 - Feb 2022*

- ❖ **Academic Success:** Designing and implementation of a clustering-based framework for predicting student success in courses under the supervision of Ali Cakmak.  
*Manuscript under review in IEEE TLT*
- ❖ **SARS-Cov-2 Mutation:** Working on deep learning approaches to predict future Covid-19 mutations under the supervision of Ali Cakmak.

**Istanbul Sehir University**

*Undergraduate Researcher*

**Istanbul, Turkey**

*Jun 2019 - Jun 2020*

- ❖ **2-Step Taxonomy:** Designing hierarchical supervised learners for classification of living organisms under the supervision of Ali Cakmak.  
*Published in the Journal of Bioinformatics and Computational Biology in October 2020*
- ❖ **Colorectal Cancer:** Developing machine learning models for predicting colorectal cancer under the supervision of Ali Cakmak.  
*Published in the VII. International Molecular Medicine Congress in September 2019*  
*Extended work published in Medical & Biological Engineering & Computing in October 2022*

## PROFESSIONAL ACTIVITIES

**University of Illinois Urbana-Champaign**

*Mentoring and Supervising Interns*

**Illinois, USA**

*Jun 2022 - Present*

- Muhammad Salman Abid (PhD, Cornell University - USA)
- Mrigank Pawagi (BS, Indian Institute of Science - India)
- Palak Kotwani (BS, University of Illinois Urbana-Champaign - USA)
- Chung-En Ho (BS, National Taiwan University - Taiwan)
- Yung-Wen Huang (BS, National Taiwan University - Taiwan)
- Eren Polat (BS, Bilkent University - Turkey)

- Lily Yang (BS, University of Waterloo - Canada)
- Ryan Rong (Peddie High School - USA)
- Zelin Wang (BS, Nanjiang University / UC Berkeley - China / USA)

**University of Illinois Urbana-Champaign**

*Summer Research Experience for Undergraduates (REU) participant*

**Illinois, USA**

*May 2021 - Aug 2021*

## GRANTS

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### Travel Grants

- ❖ US NSF travel grant to attend ICSE 2024 in Lisbon, Portugal
- ❖ ACM SIGSOFT CAPS travel grant to attend ESEC/FSE 2022 in Singapore, Singapore
- ❖ UIUC CS travel grant to attend ESEC/FSE 2022 in Singapore, Singapore
- ❖ KEN travel grant to attend QUEST-2015 in Lucknow, India

## TALKS

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**Lost in Translation: A Study of Bugs Introduced by Large Language Models while Translating Code**

- ❖ ICSE 2024, Centro Cultural de Belém, Lisbon, Portugal April 2024

**Perfect Is the Enemy of Test Oracle**

- ❖ ESEC/FSE 2022, National University of Singapore, Singapore November 2022

## ACADEMIC SERVICES

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### Conference

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| <b>C1. Reviewer:</b> International Conference on Learning Representations (ICLR'25) | 2025 |
| <b>C2. Reviewer:</b> Mining Software Repositories (MSR@ICSE'25)                     | 2025 |
| <b>C3. Reviewer:</b> Artifact Evaluation (AE@ICSE'25)                               | 2025 |
| <b>C4. Reviewer:</b> Mining Software Repositories (MSR@ICSE'24)                     | 2024 |