

# Niloofer Mansoor

Email : niloofer@huskers.unl.edu

Mobile : +1-402-601-7466

Website: niloofermansoor.github.io

LinkedIn: linkedin.com/in/niloofarmansoor

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## SUMMARY

Experienced Graduate Research Assistant in the School of Computing at the University of Nebraska-Lincoln. Pursuing a PhD in Computer Science, interested in empirical software engineering, the human aspects of software engineering, human cognition and emotion, developer productivity, and human-computer interaction. Fascinated with eye tracking and its applications in understanding developers' mental models and problem solving patterns. Skilled in front-end and back-end programming and software design.

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## RESEARCH INTERESTS

Software Engineering, Empirical Software Engineering, Human-Computer Interaction, Program Comprehension, Developer Productivity, Eye Tracking, Software Reliability

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## EDUCATION

### University of Nebraska - Lincoln

Lincoln, Nebraska

*PhD in Computer Science; GPA: 4.0*

Expected Graduation: December 2022

*Relevant Coursework: Software Architecture, Software Verification, Design and Analysis of Algorithms, Data Modeling For Systems Development, Mobile Software Analysis*

*Adviser: Dr. Bonita Sharif*

### University of Nebraska - Lincoln

Lincoln, Nebraska

*M.Sc., Computer Science*

August 2017 - December 2019

*Thesis title: Formal Modeling and Analysis of a Family of Surgical Robots*

### Shahid Chamran University

Ahvaz, Iran

*B.Sc., Computer Engineering - Software*

September 2011 - March 2016

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## PROFESSIONAL EXPERIENCE

### SERESL - Graduate Research Assistant

Since Winter 2020

Assessing Static Alarm Warning Messages (In progress)

- Empirical study on static alarms repositioning and its effects on manual inspection
- Responsible for conducting the study, setting up the online study environment on Qualtrics, and implementing web applications for cognitive tasks
- Responsible for conducting the eye tracking experiment and collecting and analyzing data

An exploratory study on the Alloy Specification language

- Empirical research on the comprehension of the Alloy Specification language
- Responsible for designing the experiment, implementing cognitive task applications, participant recruitment
- Conducted quantitative and qualitative data analysis on the participant's data

### E2 Lab - Graduate Research Assistant

Since Winter 2018

Automatic detection of compatibility issues in Android applications

- Research on Android compatibility issues due to API-related mismatches
- Responsible for conducting and studying experiments performed with different tools

Dependability analysis of a robotic surgery system

- Worked on reliability and dependability analysis of a robotic surgery system
- Developed architectural models of the robot system in Alloy specification language to find system bugs

## SKILLS AND ABILITIES

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**Programming Languages and Technologies:** Full-stack development. Proficient in Java, C#, Android, JavaScript, and C/C++, HTML5, CSS, SQL, MySQL, Git, OOP, Alloy Specification Language, PHP, Python, Bootstrap, JQuery, Adobe Photoshop, Eye Tracking, Tobii studio. Familiar with D3.js, Neo4J, Scikit learn, Pandas

**Research skills:** Experimental design, User study design, Statistics

## TEACHING EXPERIENCE

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### Graduate Teaching Assistant

CSCE 155N - Computer Science I

Fall 2021

School of Computing, University of Nebraska-Lincoln

- Designed the course projects for students and helping them with solving the problems
- Held office hours for students to help them with learning the course material and solving the homework and project problems

SOFT160 - Software Engineering I

Fall 2017

Department of Computer Science and Engineering, University of Nebraska-Lincoln

- Conducted the labs and helped students with learning the basics of software engineering and programming in Java
- Held office hours for students to help them with learning the course material and solving the homework and project problems

## PEER REVIEWED PUBLICATIONS

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**Niloofer Mansoor - Empirical Assessment of Program Comprehension Styles in Programming Language Paradigms.** - 2021 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2021). Virtual Conference.

**Niloofer Mansoor, Cole S. Peterson, Bonita Sharif - How Developers and Tools Categorize Sentiment in Stack Overflow Questions - A Pilot Study.** - Sixth International Workshop on Emotion Awareness in Software Engineering - An ICSE 2021 Workshop (SEmotion 2021 - ICSE)

Hamid Bagheri, Eunsuk Kang, **Niloofer Mansoor - Synthesis of Assurance Cases for Software Certification.** 42nd International Conference on Software Engineering - New Ideas and Emerging Results (ICSE NIER 2020)

**Niloofer Mansoor, Jonathan A. Saddler, Bruno Silva, Hamid Bagheri, Myra Cohen, Shane Farritor - Modeling and Testing a Family of Surgical Robots: An Experience Report.** 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2018), Industrial track

## WORKS UNDER REVIEW

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Cole S. Peterson, **Niloofer Mansoor, Mike Dodd, Bonita Sharif - Assessing the Effect of Programming Language and Task On Eye Movements.** ACM Transactions on Computing Education (Submitted, under review)

Bruno Silva, Clay Stevens, **Niloofer Mansoor, Witawas Srisa-an, Tingting Yu, Hamid Bagheri - AID-roid: Automated Incompatibility Detection for Android.** 52nd Annual IEEE/IFIP International Conference on Dependable Systems and Networks (DSN'22) (Submitted, under review)

## WORKS IN PREPARATION

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**Niloofer Mansoor, Hamid Bagheri, Eunsuk Kang, Bonita Sharif - An Empirical Study Assessing Software Modeling in Alloy.** Empirical Software Engineering Journal (EMSE), to be submitted by February 2022 (top tier SE journal)

**Niloofar Mansoor**, Cole S. Peterson, Bonita Sharif - **How Developers Use Stack Overflow During Code Summarization – An Eye Tracking Perspective**. Empirical Software Engineering Journal (EMSE), to be submitted by March 2022 (top tier SE journal)

#### CONFERENCE PRESENTATIONS

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**Empirical Assessment of Program Comprehension Styles in Programming Language Paradigms**. 2021 IEEE Symposium on Visual Languages and Human-Centric Computing (VL/HCC 2021). Virtual Event. October 2021

**How Developers and Tools Categorize Sentiment in Stack Overflow Questions - A Pilot Study**. Sixth International Workshop on Emotion Awareness in Software Engineering - An ICSE 2021 Workshop (SEmotion 2021 - ICSE) - Virtual Event. May 2021

**Modeling and Testing a Family of Surgical Robots: An Experience Report**. 26th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2018) - Lake Buena Vista, Florida, USA. November 2018

#### CONFERENCES AND WORKSHOPS ATTENDED

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2021 Grace Hopper Celebration of Women in Computing - Virtual Event

28th ACM Joint European Software Engineering Conference and Symposium on the Foundations of Software Engineering (ESEC/FSE 2020) - Virtual Event

2020 Grace Hopper Celebration of Women in Computing - Virtual Event

#### HONORS AND AWARDS

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**Grace Hopper Celebration of Women in Computing Scholarship** **September 2021**  
Sponsored by School of Computing at the University of Nebraska-Lincoln

**Milton E. Mohr Fellowship** **April 2021**  
Awarded by the College of Engineering at the University of Nebraska-Lincoln for the Academic Year of 2021-2022. The Milton E. Mohr Fellowship was established in 1989 for students in the College of Engineering or Biotechnology degree programs. Students are selected based on their academic performance and potential for accomplishments in their specific fields.

**Grace Hopper Celebration of Women in Computing Scholarship** **September 2020**  
Sponsored by Department of Computer Science and Engineering at University of Nebraska-Lincoln

**CRA-WP Grad Cohort Workshop** **April 2020**  
Sponsored by Grad Cohort Workshop for Women, funded by the NSF. Event postponed to 2021 due to COVID-19.

**Recipient of NSF travel grant** **November 2018**  
Received partial funding for traveling expenses for attending and presenting a paper at the FSE/ESEC conference

#### PROFESSIONAL SERVICE

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**Hiring Committee Student Member** **Fall 2019**  
Served as a student member in the Software Engineering assistant professors hiring committee

#### OUTREACH EVENTS

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**Sunday with a Scientist Virtual event** **May 23rd, 2021**  
In this event, the public meet a different scientist each month to learn about topics and careers in science. Scientists will share what they study in a fun, informal way through hands-on activities, demonstrations, and conversation. We played a live game with participants via zoom and taught them how errors are detected and corrected.

**Lincoln Hour of Code and Interactive Tech Fair event** **December 7th, 2019**

During this event, I helped showcase some of the eye tracking devices and encouraged children to use computers equipped with the eye tracking devices to learn how useful they can be.

### **Fall Graduate Information Day**

**November 2nd, 2019**

I participated in a graduate student recruitment event and served on a panel and answered potential students' questions about graduate school and the department.

### **Archie's Late Night Party at State Museum**

**June 13th, 2019**

I helped with showcasing eye tracking devices and introduced children and their parents to eye tracking, the kids read bedtime stories on a screen and we showed the visualization of their eye gaze to them and their parents.

The goal was to encourage children to explore computer science through simple activities.

## **PROJECTS AND EXPERIENCE**

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### **Invisible Bugs: The Downside of Coding Conventions in Debugging**

**Fall 2019**

Research project for Eye Tracking for Software Engineering course

- Using eye tracking to study how coding conventions affect developer debugging patterns

### **Domain-specific Type-based Analyzers for Cyber Physical Systems**

**Spring 2019**

Research project for Software Verification course

- Research project on identifying domain specific types and building small checkers to check safety properties

### **Investigating Security Threats in Google Chrome Extensions**

**Spring 2019**

Research project for Software Architecture course

- Research on Google Chrome extensions. Modelling the extensions with the Alloy specification language and finding scenarios in which there could be security problems

### **Little Bird - Social Media Website Inspired By Twitter**

**Winter of 2015**

Course Project for Database Lab

- Website designed using HTML5 and CSS, and backend implemented using PHP and MySQL

### **Sorayesh - Music Institute Office Automation Software**

**Winter and Fall of 2014**

Course Project for SE I and SE II courses - Shahid Chamran University

- Built for a Music Teaching Institute to automate the registration, accounting and hiring process
- Windows application written in C# programming language (SE I)
- Android application written in Java programming language (SE II)