

# Hessan Sedaghat

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## SUMMARY OF SKILLS

Design & Simulation: SolidWorks, AutoCAD, Finite Element Analysis (FEA), Adobe Photoshop & Illustrator  
Programming: C/C++, MATLAB  
Prototyping: Arduino, Raspberry Pie, Sensors, Motors, 3D Printing, Laser Cutting, Milling  
Fabrication: Design for Manufacturing and Assembly (DFMA), General Dimensioning and Tolerancing (GD&T)

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## EDUCATION

*University of Nebraska – Lincoln (UNL)* 01/2017-05/2020  
B.S. in **Mechanical Engineering with Honors** | Minors in **Robotics Engineering** and **Mathematics** GPA 3.85/4.00

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## WORK EXPERIENCE

*Programming Instrumentation and Electronics (PIE) group* Lincoln, NE

**Mechanical Systems Engineer (Part-Time)** 05/2017 – Present

- Coordinate a multidisciplinary team from project concept to final production, fulfilling automation needs of 20+ clients.
- Design efficient 3D CAD models, perform Finite Element Analysis (FEA) on assemblies, and communicate project requirements with manufacturers, leading to cut fabrication costs by an average of 25% per project.
- Manage schedules, develop Bill of Materials (BOM), write technical reports, and provide timely updates to stakeholders.

*University of Nebraska Medical Center* Omaha, NE

**Product Design Engineer** 10/2020 – 10/2021

- Cooperated with vascular surgeons and biomedical engineers to invent minimally invasive medical devices, acquired a design patent, and secured grants in thousands of dollars.
- Implemented electronic components and developed a Graphical User Interface (GUI) for a catheter advancement unit via microcontrollers, reaching a sensor accuracy of 92%.
- Conducted Design of Experiments (DOE) and rapid prototyped fixtures using 3D printing to test and validate concepts.

*Advanced Machinery Systems Laboratory* Lincoln, NE

**Robotics Research Engineer (Part-Time)** 06/2018 – 08/2019

- Developed electro-mechanical systems and integrated proximity sensors for 3 autonomous mobile platforms.
- Performed kinematic analysis and programmed a 6-Degree of Freedom robotic manipulator, improving run time by 75%.
- Awarded \$8000 in funds to use in 3 separate research projects. Presented the findings at the annual American Society of Agricultural and Biological Engineers (ASABE) conference, UNL Research Symposium, and to Nebraska State Senators.

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## LEADERSHIP

*University of Nebraska Robotics Club* Lincoln, NE

**Founder | President** 08/2017 – 08/2019

- Directed the overall operations, including supervision of staff and managing budgets of a 25-member organization.
- Raised over \$12,000 in funds, enabling participation in 3 international competitions and facilitation of 5 robotics camps.
- Led the hardware design group during the ASABE International Robotics Design Competitions. Participated against more than 15 teams each time and obtained 2<sup>nd</sup> place in 2017, 5<sup>th</sup> place in 2018, and 4<sup>th</sup> place in 2019.

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## PROJECTS & ACHIEVEMENTS

- **Soil Sampler, 2020:** Built an automated system to extract soil samples and monitor the dynamic forces in real-time. Decreased extraction time from 30 minutes to less than 5 minutes. The invention has helped researchers improve turf conditions in 3 golf courses across Nebraska and save thousands of dollars for the resort owners.
- **Refurbished Robotic Arm, 2019:** Modernized hardware and software components of a robotic arm controller initially built in the 1980s. Used only 30% of the sponsor's allocated budget, maintained the arm's full functionality, and reduced the controller's weight and size by more than 90%.
- **Sensi-Plate, 2019:** Spearheaded the design and testing of a smart plate capable of tracking nutrition in childcare settings. The project won the Platinum Award for UNL Department of Computer Engineering Senior Design Project.
- **Milton E. Mohr Award, 2018:** Achieved a highly competitive award from UNL College of Engineering, recognizing top engineering students between +350 undergraduates based on intellectual abilities and academic achievements.
- **Other Awards:** Dean's List (2017-2020) | Iranian Students Foundation Scholarship (2018) | Global Laureate Scholarship (2017) | INTIpreneur Business Plan Competition, finalist (2016) | Monash University Science Competition, winner (2016)

Please visit: [www.hsedaghat.com](http://www.hsedaghat.com) for more details