

# Arinah Karim

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## EDUCATION AND AWARDS

**Indiana University, School of Informatics, Computing, and Engineering** – Bloomington, IN May 2023  
Bachelor of Science in Computer Science | **Major:** Computer Science | **Specialization:** Artificial Intelligence GPA: 3.69/4.00

**Minor:** Human-Centered Computing | Cognitive Science

**Best Student Design Competition CREATIVITY** – HRI Conference 2021

Feb. 2021

- Awarded for design and creation of robot prototype Crunchy: Personal Popcorn ‘Corn’panion

### Dean’s List

- Recipient for maintaining 3.7+ GPA for 5 semesters of 7 completed semesters

## TECHNICAL SKILLS

**Languages:** Java | Python | PostgreSQL | C++ | HTML | CSS | C | R | JavaScript | TypeScript

**Operating Systems:** Microsoft Windows | Linux

**Miscellaneous:** Back-End | Full-Stack | Pandas | Machine Learning | Relational Databases | Git | Kanban | Jira | BitBucket | APIs | Postman

## EXPERIENCE

**Robot-House Human Robot Interaction Lab** – Bloomington, IN

Jun. 2020 – Present

*Undergraduate Research Assistant*

- Research facial cues and physiological arousal during human-robot interaction to better influence behavior tree decisions
- Outline and craft original human-robot activities that incorporate Honda Research Institute’s Haru tabletop robot for older adults with dementia and preschoolers in a local assisted living facility
- Utilizing ROS to implement computer vision algorithm for facial recognition and body orientation estimation to better observe human-robot interactions with Haru

**Relativity** – Chicago, IL

May 2022 – Aug. 2022

*Software Engineer Intern*

- Created designs for new button and modal using JavaScript, TypeScript, and HTML and deployed to production within 1 week of receiving task
- Fabricated accessible NuGet package for general query-making to collect information from New Relic Dashboard
- Resolved 87.5% of desired features in epic in collaboration with other team intern as well as other teams across the company

**Center of Excellence for Women and Technology** – Bloomington, IN

Aug. 2021 – May 2022

*Ethical AI Team Intern*

- Assisted in creating foundation for brand new team through marketing and networking with other college organizations
- Constructed well-versed resource guide to assist community in becoming familiarized with artificial intelligence and its uses
- Orchestrated and led various educational events relating to artificial intelligence and ethics in technology to promote awareness and understanding of existing technologies and benefits and issues

## PROJECTS

**Kaggle’s Spaceship Titanic**

Apr. 2022 – May 2022

*R, RStudio*

- Discovered hidden correlations by cleaning given dataset to determine if a passenger was transported or not
- Implemented logistic regression for binary classification with cleaned dataset and reached an accuracy rate of 75.03%
- Compared 2 RandomForest models and achieved 75.39% accuracy for model with cleaned data and 79.88% for model with raw data

**Optical Mark Recognition**

Feb. 2022 – Mar. 2022

*Python, PyCharm, Git*

- Produced a computer vision system to produce a 70% accurate symbolic representation of music sheet in respective clefs
- Explored and implemented computer vision topics such as cross-correlation, convolution, Hough space, and Sobel operator
- Worked collaboratively on a 3-person team and led project to complete assignment prior to deadline

**Autonomous Robotic Hand**

Nov. 2021 – Dec. 2021

*C, RobotC*

- Devised and collaborated on the creation of an autonomous robotic hand with the ability of lifting lightly weighted objects
- Traded speed for stability for robot to successfully lift objects within a range of 18 centimeters to 33 centimeters away
- Utilized linear regression to accurately predict the desired shoulder and elbow positions to grab an object given the object’s distance

**Light-Seeking Plant Robot**

Nov. 2021 – Dec. 2021

*C++, Arduino*

- Formulated and designed autonomous robot to search and find brightest light source to assist plant in receiving more sunlight
- Constructed enclosure, body, and code for robot
- Optimized search algorithm to decrease robot search time for sunlight from quadratic to  $n \log(n)$  time

**Snake AI**

Apr. 2021 – May 2021

*Python, PyCharm, Git*

- Constructed a Snake AI agent to learn the rules of Snake through QLearning to find optimal path to food
- Used PyGame to initialize game board and Pickle to store optimal moves in a text file
- Observed performance of QLearning algorithm by comparing it to BFS search algorithm