JAHIR UDDIN

Graduate Research Assistant, EHOHT University of Nebraska Medical Center jukomol.github.io

Omaha, NE, USA

juddin2@huskers.unl.edu

347 691 5709

github.com/jukomol
in /in/jukomol

SUMMARY -

I am a Graduate Research Assistant at the Department of Environmental Health, Occupational Health and Toxicology. I am working at the intersection of Artificial Intelligence and Human Factor Engineering to improve agricultural safety under the guidance of Dr. Aaron Yoder and Dr. Bethany Lowndes.

SKILLS -

Languages: Python, Arduino, C++ Java, C, SQL

Technologies: PX4, LiDar, Docker, git, Sensor Integration,

SDR

Framework: Tensorflow, Pytorch, ROS, Django

Boards: Arduino Mega, UNO, PRO, NANO, ESP32,

RPI, Jetson, HACKRF

Tools: Fusion 360, Proteus, 3D Printing

RESEARCH INTERESTS

Deep Learning, Computer Vision, AI, Bio-informatics, UAV, UGV, Robotics, Remote sensing

1 EDUCATION AND EMPLOYMENT HISTORY

1.1 Education

Fall 2025 - University of Nebraska Medical Center

Omaha, NE, USA

Current

· PhD, Environmental Health, Occupational Health and Toxicology

Lincoln, NE, USA

Fall 2023 -Summer 2025 University of Nebraska-Lincoln

• MS, Computer Science

• CGPA: 3.6

Summer 2018 -Spring 2022 Brac University

Dhaka, Bangladesh

• B.S., Computer Science

- Thesis: Autonomous precision landing of UAV digital twins on moving platforms and river data analytics from UAV imagery
- Worked under the guidance of Dr. Md. Khalilur Rahman and Dr. Md. Golam Rabiul Alam to develop a UAV Digital Twin, enhancing quadrotor flight stability by simulating real-world dynamics.
- Increased helipad detection accuracy to 95% by developing and training a deep learning model using UAV-acquired imagery.
- Achieved precise UAV landing within a 2 cm margin of error by an improved algorithm utilizing ArUco marker and infusing GPS data.

1.2 Employment History

June 2025 -Current

Graduate Research Assistant

Omaha, NE

- University of Nebraska Medical Center
- Project: Agricultural Machinery Operator Monitoring System (Ag-OMS)
- · Working under the guidance of Dr. Bethany Lowndes, Dr. Aaron Yoder and Dr. Santosh Kumar Pitla
- Designing and implementing a computer vision model to categorize operators' behavior.

Jan 2025 -

Graduate Research Assistant

Lincoln, NE

May 2025 • (

- GRIME LAB
- · Project: USGS: Automated Water Segmentation and River Level Detection on Camera Images Using Transfer Learning
- Working under the guidance of Dr. Troy Gilmore to fine-tune the SAM2 model, improving detection accuracy for complex waterbeds by optimizing parameters and training data.
- Designing and implementing a segmentation model, achieving robust performance in general-purpose waterbed detection across varied environments.
- Enhancing the reliability of Grime-AI software by conducting comprehensive testing and debugging, resolving critical issues to improve functionality.

July 2023 -

Graduate Research Assistant

Lincoln, NE

Dec 2024 • Nebraska Intelligent MoBile Unmanned Systems (NIMBUS) Lab

- Project: NRI: Beaver Encroachment in the Arctic Visualized by Exploratory Robots (BEAVER)
- Worked under the guidance of Dr. Justin Bradley and Dr. Brittany Duncan to develop a computer vision tracking algorithm, achieving precise control of a hanging payload by leveraging advanced motion detection techniques.
- · Improved real-time localization accuracy to within 5 cm by designing and implementing a webcam-based vision system.

Jahir Uddin Last Updated: October 27, 2025

Oct 2022 - Graduate Research Assistant Dhaka, Bangladesh

May 2023

- Laboratory of Space System Engineering and Technology (LaSSET)
- Project: Indigenous Mission Payload Design for 2U CubeSat
- Worked with advisors Abdulla Hil Kafi and Raihana Shams Islam Antara to develop a compact deep-learning model for CubeSats, enabling efficient onboard image classification using Coral Nano.
- · Mentored undergraduate research groups, fostering innovation and ensuring project milestones were achieved on schedule.
- Provided technical guidance and mentorship to an undergraduate robotics team, improving their design and problemsolving skills to achieve competition readiness.

Sep 2021 - **DevOps Intern**

Dhaka, Bangladesh

2

Dec 2021

- InsideMaps
 - Enhanced the accuracy and efficiency of a photogrammetry tool, optimizing it for real estate mapping applications by refining algorithms and workflows.

2 RESEARCH ACCOMPLISHMENTS

2.1 Publication Records

- Conference Proceedings (C)
- Undergraduate Thesis (T)

2.1.1 Conference Proceedings: Peer Reviewed

- C6 **Jahir Uddin**, Mehedi Hassan, Md. Mahbub Ul Haque, Rehnuma Binta Shahriar, Shad Nur Mim Bidhu, Raihana Shams Islam Antara, Abdulla Hil Kafi, DeepSea Cluster: Detection and Classification of Anthropogenic Ocean Noise Using Satellite Images, IAC 2023, Baku, Azerbaijan. Available on IAF
- C5 **Jahir Uddin**, Haque Md, Mahbub, Ul, Sahariar Sihab, Wadud MD, Firoz, Shahriar Rehnuma, Binta, Chamon Amanto, Amin, Kafi Abdulla, Hil, Optimizing Autonomous Navigation of Unmanned Ground Vehicles in Challenging Terrain through Surface Analysis and AI, IAC 2023, Baku, Azerbaijan. Available on IAF
- C4 **Jahir Uddin**, Haque Md,Mahbub, Ul, Wadud MD, Firoz, Ahad Muntasir, Sahariar Sihab, Arnab Shams, Fardous, Shahriar Rehnuma, Binta, Rahman Rafi, Musfiq, Kafi Abdulla, Hil, Multi Terrain Drones For End-To-End Ocean Monitoring And Protection, IAC 2023, Baku, Azerbaijan. Available on IAF
- C3 Joy Chironjeet, Das, Wara Tayab, Uddin, Golpa Prapty, Majumder, Jahir Uddin, Antara Raihana, Shams, Islam, Kafi Abdulla, Hil, Navigating the Challenges of Inflation and Material Scarcity in Space Programmes, IAC 2023, Baku, Azerbaijan. Available on IAF
- C2 **Jahir Uddin**, Muntasir Ahad, Abdulla Hil Kafi, Wireless Event Based Kill-switch for Safe & Autonomous UAV Operations, ICEIC 2023, Singapore. Available On IEEE Xplore
- C1 Jahir Uddin, Firoz Wadud, Rezwana Ashrafi, Md. Khalilur Rhaman, Md. Golam Rabiul Alam, Landing with Confidence: The Role of Digital Twin in UAV Precision Landing, 10th International Conference on Recent Advances in Air and Space Technologies (RAST 2023), Istanbul, Turkey. Available on IEEE Xplore

2.1.2 Undergraduate Thesis

T1 **Jahir Uddin**, Rezwana Ashrafi Rimi, Suhail Haque Rafi, Mashiat Mamun Raidah, Autonomous precision landing of UAV digital twins on moving platforms and river data analytics from UAV imagery, Brac University, Dhaka, Bangladesh. Available on BRACU Dspace

2.2 Other Publication Records

- Poster Presentation (T)
- Workshops (W)

2.2.1 Poster Presentation

P1 **Jahir Uddin**, Brittany Duncan, Justin M. Bradley, Unmanned Symbiosis- Multi-Robot Integration for Extended Data Collection in Remote Regions, AIAA Intelligent Systems Workshop, University of Nebraska-Lincoln, Lincoln, NE, USA, June 2024

2.2.2 Workshops

- W3 Mojammel Haque Shourobh, **Jahir Uddin**, Md Firoz Wadud, UAVBuzz: Practical Approach To Build UAV (Workshop), IEEE AESS Student Chapter, Brac University, Dhaka, Bangladesh, 2022
- W2 Md Firoz Wadud, Jahir Uddin, Hashibul Islam, Challenges of Autonomous Mars Rover (Workshop), Mars Society Bangladesh, Dhaka, Bangladesh, 2021
- W1 Jahir Uddin, Getting Hacked is Easy (Workshop on Cyber Security), RIGHT, Daffodil International University, Dhaka, Bangladesh, 2020

2.3 Research Projects and Awards

• BracU Dichari

Project Engineering Manager: Jahir Uddin (April 2022- December 2022)

Awards: 4th Position and Perseverance Award, European Robotics League, 2022, Poland

Contribution:

- Developed UAV from scratch for rescue mission, capable of 5 kg payload
- Integrated on-board deep learning algorithm on a UAV to detect humans in the disaster zone
- Developed EXIF manipulation tool to map the environment efficiently
- Managed Core team of 9 members

• BracU Mongol Tori

Technical Team Lead: Jahir Uddin (June 2021- March 2022)

Awards: 4th Position, University Rover Challenge, Virtual, Utah, USA 2021

Contribution:

- Developed autonomous traversal algorithm for the Mars Mission
- Achieved Highest Score for Autonomous Mission in URC 2021
- Managed core team of 12 members
- Collected Rock Sampling Dataset

• BracU Kilo-Flight

Computer Vision Developer: Jahir Uddin (June 2021- December 2021)

Awards: 9th Position, International Rover Design Challenge, Chennai, India 2021

Contribution:

- Developed deep learning algorithm to classify different terrains

Enigma Systems

Team Lead: Jahir Uddin (August 2021- February 2022)

Awards: Global Finalist, Earth Observation Dashboard Hackathon, USA 2021

Contribution:

- Developed AQI Dashboard using Tableau, helps users to easily find out the AQI of a specific region

BracU Scrutineer

Robot Programmer: Jahir Uddin (August 2021- February 2022) **Awards:** 4th, Kibo Robot Programming Challenge, Bangladesh, 2021

Contribution:

- Developed autonomous traversal algorithm to precisely move the Astrobee in ISS(International Space Station).

Calculator Game

Programmer: Jahir Uddin

Awards: National Champion, 3rd ACC National Science Festival, Dhaka, Bangladesh, 2016

Contribution:

- Developed Ping Pong and Tetris games for TI84 calculator, written in Pure C

2.4 Significant Publicity and Media Appearances

2.4.1 NewsPaper

• BracU Dichari: A Bangladeshi robotics team on the world stage

The Business Standard (8th May, 2022)

• BracU Dichari Achieved Perseverance Award

The Prothom Alo (16th July, 2022)

2.4.2 Television

• Ekhon Joubon Jar

NTV (7th June, 2022)

• The story behind the success was different!

News24 (November, 2022)

· How the local drone and robot will conduct rescue operations in the air and on land

Prothom Alo (26th July, 2022)

3 SERVICE AND OTHER ACCOMPLISHMENTS

3.1 Scholarships

- Talentpool Scholarship, Secondary School Certificate Examination, Comilla Education Board (2015)
- Talentpool Scholarship, Junior School Certificate Examination, Comilla Education Board (2013)
- General Grade Scholarship, Primary School Certificate Examination, Comilla Education Board (2009)

3.2 College Service

- Best Contributor Award (2017) Neutrino ACC Science Club
- Neutrino ACC Science Club, Vice President (2016-2017), Adamjee Cantonment College

3.3 University Service

- IEEE AESS BracU SC, Member, 2021-2023
- Robotics Club of Brac University, Member, 2018-2022