JAHIR UDDIN

Graduate Research Assistant
NIMBUS Lab, School of Computing
University of Nebraska-Lincoln

jukomol.github.io
juddin2@huskers.unl.edu
347 691 5709
github.com/jukomol
Lincoln, NE, USA
/in/jukomol

SUMMARY

I am a graduate research assistant at Nebraska Intelligent MoBile Unmanned Systems Lab. Currently, I am working on NRI funded project under the supervision of Dr. Justin Bradley

SKILLS

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

Technologies: ROS, Docker, Django, Point Cloud, Tensorflow

1 EDUCATION AND EMPLOYMENT HISTORY

1.1 Education

8/2023 - Current **University of Nebraska-Lincoln** **Lincoln, NE, USA**

- *Ph.D., Computer Science*
- Adviser: Justin M. Bradley
- Emphasis: UAS and ASV Applications

5/2018 - 12/2022 **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
- Adviser: Md. Khalilur Rahman, Md. Golam Rabiul Alam
- Emphasis: UAV and UGV Applications

1.2 Employment History

8/2023 - Current **Graduate Research Assistant** **Lincoln, NE**

- Nebraska Intelligent MoBile Unmanned Systems (NIMBUS) Lab
- Project: NRI: Beaver Encroachment in the Arctic Visualized by Exploratory Robots (BEAVER)

10/2022 - 5/2023 **Graduate Research Assistant** **Dhaka, Bangladesh**

- Laboratory of Space System Engineering and Technology (LaSSET)
- Project: Indigenous Mission Payload Design for 2U CubeSat

9/2021 - 12/2021 **DevOps Intern** **Dhaka, Bangladesh**

- InsideMaps
- 3D Visualization and Mapping

2 RESEARCH ACCOMPLISHMENTS

2.1 Publication Records

- Conference Proceedings
- Undergraduate Thesis

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:

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:

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:

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:

C2 **Jahir Uddin**, Muntasir Ahad, Abdulla Hil Kafi, Wireless Event Based Kill-switch for Safe & Autonomous UAV Operations, ICEIC 2023, Singapore. Available: `https://ieeexplore.ieee.org/abstract/document/10049917`

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: https://ieeexplore.ieee.org/abstract/document/10197983

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: http://hdl.handle.net/10361/21839

2.1.3 Other Publications

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

2.2 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
  Description: This research aims to provide rescue assistance and conduct various missions in emergency situations. Dichari includes a rover and drone developed by Team Dichari. This rover can traverse through rough terrains, conduct different tests, and do mapping of the surroundings along with detecting obstacles. Moreover, the drone is able to assess the environment and deliver emergency payload to survivors. https://github.com/BRACU-DICHARI

- **BracU Mongol Tori**
  Technical Team Lead : Jahir Uddin (June 2021- March 2022)
  Awards : 4th Position, University Rover Challenge, Virtual, Utah, USA 2021
  Description: Mongol-Tori is a four-wheeler rover developed for analyzing Martian soil and atmosphere. The rover has six degrees of freedom arm, capable of performing rescue missions, industrial work, autonomous maintenance, and many more. The current functionalities include a PCB board for the entire rover system, inverse kinematics implemented arm, and a GUI for the whole system. https://www.bracu-mongoltori.com/Achievements.html

- **BracU Kilo-Flight**
  Machine Vision Engineer : Jahir Uddin (June 2021- December 2021)
  Awards : 9th Position, International Rover Design Challenge, Chennai, India 2021
  Description: Kilo Flight is a Mars research project to design an Unmanned Aerial System (UAS) considering various extra-terrestrial parameters in the design. The design is equipped and mission-ready for Operation on Mars.

- **Enigma Systems**
  Team Lead : Jahir Uddin (August 2021- February 2022)
  Awards : Global Finalist, Earth Observation Dashboard Hackathon, USA 2021
  Description: Our dashboard Enigma Systems Dashboard is a user friendly one. It will show CO2 NO2 emission by County in map and CO2 NO2 are distributed region wise so that it can be found when needed. On right total amount is shown along with the region code and in the bottom a graph is added where we can search region name with date for better understanding. https://www.eodashboardhackathon.org/challenges/air-quality/spatial-analysis-and-time-series/teams/enigma-systems/project

- **BracU Scrutineer**
  Robot Programmer: Jahir Uddin (August 2021- February 2022)
  Awards : 4th, Kibo Robot Programming Challenge, Bangladesh, 2021
  Description: The Kibo Robot Programming Challenge is an educational program in which students solve various problems by programming free-flying robots (Astrobee and Int-Ball) in the International Space Station (ISS).

- **Calculator Game**
  Programmer: Jahir Uddin
  Awards : National Champion, 3rd ACC National Science Festival, Dhaka, Bangladesh, 2016
  Description: It was a game for TI calculators, written in pure C (assembly) language.

2.3 Significant Publicity and Media Appearances

2.3.1 NewsPaper

- **BracU Dichari: First Bangladeshi team to qualify for European Robotics League (ERL)**
  The Business Standard (8th May, 2022)
  https://shorturl.at/tHKPT

- **BracU Dichari: Brac University team makes it to European Robotics League top 5**
  The Daily Star (15th May, 2022)
  https://shorturl.at/hnu45

- **BracU Dichari Achieved Perseverance Award**
  The Prothom Alo (16th July, 2022)
  https://www.prothomalo.com/lifestyle/tyil8zjq0t

- **BracU Dichari Achieved Perseverance Award**
  The Prothom Alo (Printed Edition) (16th July, 2022)
  https://www.facebook.com/bracudichari/photos/a.129177253024888/151153097493970/

- **BracU Dichari Achieved Perseverance Award**
  The Prothom Alo (Printed Edition) (16th July, 2022)
  https://www.facebook.com/bracudichari/photos/a.129177253024888/151153097493970/

- **BRACU Rover: The story of a group of young men who conquered the world**
  The Business Standard Feature (14th August, 2022)
  https://shorturl.at/grPY5

- **BracU Dichari: A Bangladeshi robotics team on the world stage**
  The Business Standard (18th August, 2022)
  https://shorturl.at/hlvG9

2.3.2 Television

- **Ekhon Joubon Jar**
  NTV (7th June, 2022)
  https://www.facebook.com/bracudichari/videos/534673765029812

- **The story behind the success was different!**
  News24 (November, 2022)
  https://www.youtube.com/watch?v=RMAektkV7cI

- **How the local drone and robot will conduct rescue operations in the air and on land**
  Prothom Alo (26th July, 2022)
  https://www.facebook.com/DailyProthomAlo/videos/386722286863061

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