+49 163 213 1060

https://hannanejazkeen.github.io/

hannankeen@gmail.com

Konrad-Adenauer-Str. 34, 67663, Kaiserslautern, Germany

https://www.linkedin.com/in/hannan-ejaz-keen-61714b3b

https://scholar.google.com/citations?user=36PbRYYAAAAJ

https://www.researchgate.net/profile/Hannan-Keen

Dr. Hannan Ejaz Keen

Senior Researcher

Expert in **Sensor Fusion**, **Mapping, GenAI** and **Drone Systems**

About Me

I envision finding solutions to current global issues via intelligent robotics. My broad spectrum of expertise ranges from sensor fusion, mapping, and Generative AI to autonomy in aerial and water drones. I have hands-on experience with many high-tech sensors, including stereo cameras, lidars, sonars, and ground-penetrating radar. I have several publications in international conferences, including IROS and ICRA. I am a self-starter with the ability to work seamlessly well around teams. I aspire to work in the high-tech industry, utilizing my skills to meet the company's needs and ultimately contribute to the betterment of society.

Professional Experience

Senior Researcher (March 2024 – Present)

XITASO GmbH

Job Description:

- Design project proposals and financial plans as a consortium partner.
- Direct work packages across various consortia.
- Supervise PhD students in their research and projects.
- Establish new industry contacts and represent the organization at various workshops.

Projects:

Name: *Valisens (Jan 2023 – Dec 2025)*
Key Partners: ***Frauhofer IVI, Liang Dao***
Description: *V2X communication based cooperative automated driving.*

Name: *ENGEL (Jan 2024 – Dec 2028)*
Key Partners: ***Airbus Helicopters, DLR***
Description: *Safe landing for helicopters into an unknown environment.*

Research Associate (Sep 2019 – Feb 2024)

Robotics Research Lab at RPTU Kaiserslautern Landau

Job Description:

- Authored project proposals as a consortium partner.
- Led multiple work packages within various consortia.
- Conducted national and international travel to advance project objectives.
- Supervised student theses and project work.
- Authored and contributed to research publications.
- Continued PhD research while managing professional responsibilities.

Projects:

Name: *Nalamki (Jan 2021 – Dec 2023)*
Key Partners: ***Frauhofer HHI, John Deere Deutschland, DFKI***
Description: *Multispectral and Heat signature analysis via aerial drone and Ground Panetrating Radar (GPR).*

HANDS-ON EXPERTISE

Drones

Mikrokopter's Octocopter
DJI Mavic Air
GD's Basilisk
In-house built Astrider
TUK Campus Bus

Sensors / Systems

Ouster LiDAR
Velodyn LiDAR
Nerian Stereo Camera
ZED Stereo Camera
Tritech's Mikron Sonar
Tritech's Gemini 720ik
Trimble GNSS
Starfire GNSS
Parrot Sequoia Multispectral Camera
Flir Vuo Pro Thermal Camera
RadarTeam's Cobra Wireless Ground Penetrating Radar
Nvidia Jetson Boards

COMPUTER EXPERTISE

Languages

C/C++
Python
Bash

Frameworks/Software

FINROC
ROS/ROS2
MATLAB
Docker
Pix4DMapper/Pix4DField
MS Office
Latex
Jira
Confluence
Personio
DrawIO

GENERAL DYNAMICS
European Land Systems

Name: *Ponton Boot (Jan 2019 – Dec 2021)*
Key Partners: ***General Dynamics, Technisches Hilfswerk***
Description: *Mapping and Autonomous Driving of Surface Water Drones for Flooded Environment.*

Name: *JD Mapping (Jan 2016 – Dec 2018)*
Key Partners: ***John Deere Deutschland***
Description: *Elevation mapping using aerial drone and field tractor*

JOHN DEERE

Teaching Experience

Lecturer (June 2016 – Jan 2018)
Computer Science Department - University of Central Punjab Lahore

Lab Instructor (Feb 2014 – Jan 2016)
Computer Science Department - University of Central Punjab Lahore

Educational Background

Doctor of Engineering (Feb 2018 – July 2024)
Robotic Research Lab – RPTU Kaiserslautern Landau

Research Area: *Traversability Mapping in Post-Flood Environment.*

Description: *In post-flood environments, a critical challenge is the destruction of the landscape and the lack of updated maps for rescue operations. My Ph.D. research focused on developing the Shallow Water Traversability Mapping (SWiM) architecture, which detects both surface and underwater obstacles that pose risks to robotic navigation and generates accurate traversability maps. This system is designed to be reconfigurable, robust, reusable, and precise. I have several peer-reviewed publications in this research area, highlighting the innovative contributions and practical applications of my work.*

MS in Electrical Engineering (Sep 2014 – June 2016)
Lahore University of Management Sciences

Thesis: Conflict Avoidance among multiple Unmanned Aircrafts using Reinforcement Learning.

BSc. in Electrical Engineering (Sep 2009 – Oct 2013)
University of Engineering and Technology Lahore

Senior Year Project: *Design and Development of Intelligent Dust Cleaner with Wall Following Technology.*

Trainings

1. *"How to recognize phishing?", March 2023.*
2. *"Data Protection - Data Processing", March 2023.*
3. *"Data Protection – Basic Knowledge", March 2023.*
4. *"Understanding the Ground Penetrating Radar" from RadarTeam Sweden AB, November 2022.*
5. *"Drone Flight Training and License", Jan 2020.*

SOFT SKILLS

Problem Solving
Focused
Consistent
Team Player
Research
Adaptability
Time Management

LANGUAGES

English (B2 Level)
German (A2 Level)
Urdu (Native)

Publications

1. ***Keen, H. E.**, Berns, K., "Traversability mapping for safe navigation in flooded environment," IEEE/RSJ International Conference on Robotics and Automation (ICRA), London, England, 2023, Accepted Poster.*
2. ***Keen, H. E.**, Berns, K., "Probabilistic Fusion of Surface and Underwater Maps in a Shallow Water Environment," Advances in Service and Industrial Robotics. RAAD 2023. Mechanisms and Machine Science, vol 135. Springer, Cham.*
3. ***Keen, H. E.**, Berns, K., "Denoising and Segmentation of SONAR Images for Rescue Operations. International Symposium on Robotics," ISR Europe 2023. Stuttgart.*
4. *Meckel, D., **Keen, H. E.**, Heupel, C., Berns, K., "Transferring off-road control concepts to watercraft used in flooded areas," Commercial Vehicle Technology 2022. ICVTS 2022. Proceedings. Springer Vieweg, Wiesbaden.*
5. ***Keen, H. E.**, Jan, Q. H., and Berns, K., "Drive on Pedestrian Walk. TUK Campus Dataset," 2021 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS), Prague, Czech Republic, 2021, pp. 3822-3828.*
6. *Zaheer, M.H., Mehdi, S.A., **Keen, H.E.,** Berns, K., "Detection of Fungus in Gladiolus Fields Using a Quadcopter," Advances in Service and Industrial Robotics. RAAD 2021. Mechanisms and Machine Science, vol 102. Springer, Cham.*
7. ***Keen, H.E.**, Berns, K., "Generation of Elevation Maps for Planning and Navigation of Vehicles in Rough Natural Terrain," Advances in Service and Industrial Robotics. RAAD 2019. Advances in Intelligent Systems and Computing, vol 980. Springer, Cham.*

References

Prof. Dr. Karsten Berns *berns@informatik.uni-kl.de*
Chair Head RRLab at RPTU Kaiserslautern Landau

Dr. Patrick Wolf *patrick.wolf@iese.fraunhofer.de*
Senior Safety Engineer at Fraunhofer IESE

Prof. Dr. Moazzam Faraz *moazam.fraz@seecs.edu.pk*
Associate Professor SEECS at NUST Islamabad