PERSONAL INFORMATION Rajan Prasad



 Khalifa University, Abu Dhabi (UAE)

 +971-501240069, +977-9848305168

[rajanprasad460@hotmail.com](mailto:rajanprasad460@hotmail.com)



 Skype rajanprasad460

 0000-0003-3091-7138

<https://github.com/rajanprasad460>

POSITION APPLIED FOR Post Doctoral / Researcher / Assistant Professor

EDUCATION AND TRAINING

11/09/2012–23/12/2016 Bachelor in Mechanical Engineering First division (79.65%)

# Institute of Engineering, Western Region Campus, Pokhara (Nepal)

* Topper of BME/069 Batch
* Bachelor Final Year Project Title: "Design and Development of Reaper 'Mechanical Hausa' ",

Intended to help small-scale farmers’ problems and drudgery. It was designed using locally available parts so that the dependency on imports could be reduced.

* Focused on 'Design and Dynamics'
* Elective subjects: 'Machine design' and 'Tool design'

15/07/2017–30/06/2019 Master in Mechanical Engineering Grade A (Approx. 90 %)

# Beijing Institute of Technology, Beijing (China)

* Honored with 'Distinguish International Student Award 2017-2018'
* Research direction: "Dynamics and Control"
* Thesis title: "Real-time torque vectoring control of an off-road unmanned ground vehicle with multi-complex nonlinear constraints"
* Worked on Control co-ordination of AWID vehicles and Implementation using an embedded platform for practical verification

05/09/2019–15/07/2023 Ph.D. in Mechanical Engineering Grade A (GPA 3.97)

# Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

* Thesis title: “Development of Innovative Bio robotic Assistive Exoskeletons for Stroke Patients Rehabilitation”.
* Thesis Defense Date: 15 June 2023
* Developed a simulation-based framework for analysis of cable-driven lower limb rehabilitation exoskeletons (C-LREX): <https://github.com/rajanprasad460/C-LREX-Tool/releases>
* Teaching assistance (TA) for undergraduate courses: Mechatronics, Solid Mechanics.

02/11/2023–31/06/2024 Post Doctoral Fellow, Medical Sciences

Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

* Focus area: “Influence of Biofeedback on reducing mental stress”; a non-invasive approach to study and analyze stress variation.
* Recording bio-signals such as heart rate, ECG, EEG, PPG, and other related signals to study the stress level.
* Incorporating biofeedback, mindfulness, and similar approach to study influence on stress variation
* Assisting MD students with their projects and undergraduate courses (Rehabilitation Engineering and Introduction to Neuroscience) students in recording and analyzing bio-signals.

01/07/2024–Ongoing Post Doctoral Fellow, Department of Mechanical and Nuclear Engineering

Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

* Focus area: “Underwater hybrid manipulator: soft robotic arm for support and manipulation”
* N-link serial chain based discrete rigid manipulator design, dynamics and control (Elephant trunk inspired).
* Development of generalized framework for n-link serial chain with 1/2/3 rotational DOF at each joint (working toward inclusion of ODE partial derivatives for faster solution to match real time response).

PERSONAL SKILLS

Mother tongue(s) Bhojpuri, Nepali

Foreign language(s) Hindi, English (IELTS *7* Band 2019)

Communication skills Good communication skills gained through my experience as an international student at Beijing Institute of Technology and Khalifa University.

Other skills ▪ Software for Design: CATIA, PTC CREO, Auto-CAD

* Software for Analysis: ADAMS, ABAQUS, MATLAB/Simulink, Python (basic), AnyBody
* Documentation/Reporting: MS-OFFICE, Visio, etc.
* Other software: CAN calibration software, C Language, Pisnoop for OpenECU

PUBLICATIONS

Conference(s) ▪ ***Online***

Prasad, R. & Ma, Y. Hierarchical Control Coordination Strategy of Six Wheeled Independent Drive (6WID) Skid Steering Vehicle. IFAC-PapersOnLine 52, 60–65 (2019).

Prasad, R. et al. A Generalized Framework for the Assessment of Various Configurations of Cable-Driven Mobile Lower Limb Rehabilitation Exoskeletons. in Proceedings of the 12th International Conference on Biomedical Engineering and Technology 133–140 (ACM, 2022). doi:10.1145/3535694.3535716.

Prasad, R., Khalaf, K., Awad, M. I. & El-Rich, M. Assisting Stroke Gait with Cable Driven Lower Limb Rehabilitation Exoskeleton (C-LREX): Simulation Study. in 13th International Conference on Biomedical Engineering and Technology (ICBET) 6 (2023).

Prasad, R., Khalaf, K., Awad, M. I. & El-Rich, M. Influence of Controller on Cable Driven Lower Limb Rehabilitation Exoskeleton (C-LREX): PD vs MPC. in 9th International Conference on Control, Decision and Information Technologies (CoDIT) (ed. IEEE) 6 (2023).

M. Alani, F. et al. Complex Correlation Method Identifies Efficacy of One-week Mindfulness Training in College Students. in 2023 Computing in Cardiology (CinC) 1–2 (IEEE, 2023).

Ihsan Khan, M. S. et al. Baevsky’s Stress Index as a Sensitive Indicator for Biofeedback Efficacy in Medical Students: a Pilot Study. in 2024 46th Annual International Conference of the IEEE Engineering in Medicine and Biology Society (EMBC) 1–4 (IEEE, 2024). doi:10.1109/EMBC53108.2024.10782708.

Nasrat, S. et al. Multiscaled crucial events complexity analysis of heart rate signals during Tibetan singing bowls meditation. in 2024 13th Conference of the European Study Group on Cardiovascular Oscillations (ESGCO) 1–2 (IEEE, 2024). doi:10.1109/ESGCO63003.2024.10766966.

Prasad, R., Nasrat, S., Dimassi, Z., Alefishat, E. & Jelinek, H. F. Participants tend to Synchronize with the Tibetan Singing Bowl. in 2024 13th Conference of the European Study Group on Cardiovascular Oscillations (ESGCO) vol. 4 1–2 (IEEE, 2024).

Conference(s) ▪ ***Accepted***

Prasad, R., Rosyid A., Renda F., El-Khasawneh B., Cable Driven Elephant Trunk-Inspired Robot: Analytical Derivatives and Computational Insights . 6th International Conference on Artificial Intelligence, Robotics, and Control (AIRC 2025) 2025.

Journal(s) ▪ ***Online***

Prasad, R., Ma, Y., Wang, Y. & Zhang, H. Hierarchical coordinated control distribution and experimental verification for six-wheeled unmanned ground vehicles. Proc. Inst. Mech. Eng. Part D J. Automob. Eng. 095440702094082 (2020) doi:10.1177/0954407020940823.

Prasad, R. et al. A Framework for Determining the Performance and Requirements of Cable-Driven Mobile Lower Limb Rehabilitation Exoskeletons. Front. Bioeng. Biotechnol. 10, (2022).

Prasad, R., El-Rich, M., Awad, M. I., Agrawal, S. K. & Khalaf, K. Bi-Planar Trajectory Tracking with a Novel 3DOF Cable Driven Lower Limb Rehabilitation Exoskeleton (C-LREX). Sensors 23, (2023).

Prasad, R., El-Rich, M., Awad, M. I., Agrawal, S. K. & Khalaf, K. Muscle-inspired bi-planar cable routing: a novel framework for designing cable driven lower limb rehabilitation exoskeletons (C-LREX). Sci. Rep. 14, 5158 (2024).

-***Accepted***

Prasad R., El-Rich M., Awad M.I., Khalaf K., Simulation of Stroke Gait Impairment Correction Using a Cable Driven Lower Limb Rehabilitation Exoskeleton (C-LREX). *Wearable Technologies.*

▪ ***Submitted, Under Revision***

Prasad R., Dimassi, Z., Jelinek H.F., Towards Reliable ECG-derived Respiratory Monitoring via Baseline Wander Removal Techniques. *Scientific Reports.*

ADDITIONAL INFORMATION

Honors and Awards ▪ Distinguish International Student Award 2017-2018, Beijing Institute of Technology, China

* 2nd Prize in Rocket Competition 2018 held at Beijing Institute of Technology
* Chinese Government Scholarship (CSC) Scholarship for Master Study
* HSEB Scholarship by HSEB, Nepal
* Best Paper Presentation Award at ICBET 2022 and 2023 conference

REFERENCES

|  |  |
| --- | --- |
| **Dr. Marwan El-Rich**  Associate Professor  Department of Mechanical Engineering  Khalifa University, Abu Dhabi, UAE  Phone: +971 2 312 4193  Email: [marwan.elrich@ku.ac.ae](mailto:marwan.elrich@ku.ac.ae) | **Dr. Kinda Khalaf**  Associate Professor & Associate Chair,  Department of Biomedical Engineering  Khalifa University, Abu Dhabi, UAE  Phone: +971 2 312 3948  Email: [kinda.khalaf@ku.ac.ae](mailto:kinda.khalaf@ku.ac.ae) |
| **Dr. Ma Yue**,  Associate Professor  Department of Mechanical Engineering  Beijing Institute of Technology, Beijing, China  Phone: +86-1068918489  Email: [armcynicism@bit.edu.cn](mailto:armcynicism@bit.edu.cn) | **Er. Ram Prasad Poudel**,  Associate Professor & Campus Chief  Department of Mechanical Engineering  Institute of Engineering, Western Region Campus, Pokhara, Nepal  Phone: +977-9842171050  Email: [campuschief@wrc.edu.np](mailto:campuschief@wrc.edu.np) |
| **Dr. Sunil K. Agrawal**  Professor  Department of Mechanical Engineering  Columbia University in the City of New York  Phone: (212) 854-2841  Email: [sunil.agrawal@columbia.edu](mailto:sunil.agrawal@columbia.edu) |  |
|  |  |