Curriculum Vitae

Rajan Prasad

Khalifa University, Abu Dhabi (UAE)

- Tel: +971-501240069 , +977-9848305168
- Email: rajanprasad460@hotmail.com, rajan.prasad@ku.ac.ae
- ORCID: 0000-0003-3091-7138
- Github github.com/rajanprasad460
- Website: rajanprasad460.com.np

Position Applied For: Post Doctoral / Researcher / Assistant Professor

Education

Bachelor in Mechanical Engineering First division (79.65%) 11/09/2012–23/12/2016
Institute of Engineering, Western Region Campus, Pokhara (Nepal)

- Topper of BME/069 Batch
- Bachelor Final Year Project: "Design and Development of Reaper 'Mechanical Hasua' " (focused on small-scale farming; local parts to reduce import dependency)
- Focus: Design and Dynamics; Electives: Machine Design, Tool Design

Master in Mechanical Engineering Grade A (∼85%) 15/07/2017–30/06/2019
Beijing Institute of Technology, Beijing (China)

- Distinguished International Student Award 2017–2018
- Research: Dynamics and Control
- Thesis: Real-time torque vectoring control of an off-road UGV with multi-complex nonlinear constraints
- Control co-ordination of AWID vehicles; embedded implementation for verification

Ph.D. in Mechanical Engineering GPA 3.97 05/09/2019–15/07/2023
Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

- Thesis: "Development of Innovative Biorobotic Assistive Exoskeletons for Stroke Patients Rehabilitation"
- Thesis defense: 15 June 2023
- Developed C-LREX simulation framework: github.com/rajanprasad460/C-LREX-Tool/releases
- Teaching Assistant (UG): Mechatronics, Solid Mechanics

Work Experience

Post Doctoral Fellow, Medical Sciences 02/11/2023–31/06/2024
Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

- Focus: non-invasive biofeedback influence on stress variation
- Recorded bio-signals (heart rate, ECG, EEG, PPG, etc.) and analyzed stress level
- Incorporated biofeedback, mindfulness; assisted MD and UG courses (Rehab Eng., Intro to Neuroscience)

Post Doctoral Fellow, Mechanical & Nuclear Engineering 01/07/2024–Ongoing
Khalifa University, Abu Dhabi, United Arab Emirates (UAE)

- "Underwater hybrid manipulator: soft robotic arm for support and manipulation"
- n-link serial chain discrete rigid manipulator (elephant trunk inspired): design, dynamics, control
- Generalized framework for n-link with 1/2/3 rotational DOF per joint; toward ODE partial derivatives for faster real-time response

Personal Skills

Mother tongue(s): Bhojpuri, Nepali

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

Software (Design): CATIA, PTC CREO, AutoCAD

Software (Analysis): ADAMS, ABAQUS, MATLAB/Simulink, Python (basic), AnyBody

Documentation/Reporting: MS Office, Visio

Other: CAN calibration software, C language, Pisnoop for OpenECU

Honors and Awards

- Distinguished International Student Award (2017–2018), Beijing Institute of Technology, China
- Second Prize, Rocket Competition (2018), Beijing Institute of Technology, China
- Chinese Government Scholarship (CSC) for master's study
- HSEB Scholarship (Nepal)
- Best Paper Presentation Award at ICBET (2022, 2023)

Conference Organization and Talks

- Technical Committee Member — AIRC (May 2025; Apr 2026), Savannah, GA, USA
- Technical Committee Member — CCRIS (Aug 2025), Guangzhou, China
- Technical Committee Member — CCEAI (Jan 2026), Buenos Aires, Argentina
- Invited Speaker — ICBET (June 2025), Seoul, South Korea
- Presenter — Soft Exoskeleton Robots and Digital Health Care Workshop (June 2025), UWTSD, United Kingdom

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 Cable-Driven Mobile Lower Limb Rehabilitation Exoskeletons. *ICBET*, ACM (2022). doi:10.1145/3535694.3535716
- Prasad, R., Khalaf, K., Awad, M. I. & El-Rich, M. Assisting Stroke Gait with C-LREX: Simulation Study. *ICBET* (2023).
- Prasad, R., Khalaf, K., Awad, M. I. & El-Rich, M. Influence of Controller on C-LREX: PD vs MPC. *CoDIT* (IEEE) (2023).
- M. Alani, F. *et al.* Complex Correlation Method Identifies Efficacy of One-week Mindfulness Training in College Students. *CinC* (IEEE, 2023).
- Ihsan Khan, M. S. *et al.* Baevsky's Stress Index as a Sensitive Indicator for Biofeedback Efficacy. *EMBC* (IEEE, 2024). doi:10.1109/EMBC53108.2024.10782708

- Nasrat, S. *et al.* Multiscaled crucial events complexity during Tibetan singing bowls meditation. *ESGCO* (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. *ESGCO* (IEEE, 2024).
- Prasad, R., Rosyid A., Renda F., El-Khasawneh B. Cable Driven Elephant Trunk-Inspired Robot: Analytical Derivatives and Computational Insights. *AIRC 2025* (2025). doi:10.1109/AIRC64931.2025.11077512

Journal(s) (Online)

- Prasad, R., Ma, Y., Wang, Y. & Zhang, H. Hierarchical coordinated control distribution and experimental verification for six-wheeled UGVs. *Proc. IMechE Part D* (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 C-LREX. *Sensors* 23 (2023).
- Prasad, R., El-Rich, M., Awad, M. I., Agrawal, S. K. & Khalaf, K. Muscle-inspired bi-planar cable routing framework for designing C-LREX. *Scientific Reports* 14, 5158 (2024).
- Prasad, R., El-Rich, M., Awad, M. I., Khalaf, K. Simulation of Stroke Gait Impairment Correction Using C-LREX. *Wearable Technologies* (2025). doi:10.1017/wtc.2025.10013

Submitted, Under Review

- Prasad R., Dimassi, Z., Jelinek H.F. Towards Reliable ECG-derived Respiratory Monitoring via Baseline Wander Removal Techniques. *Computer Methods and Programs in Biomedicine* (2025).
- Prasad, R., Rosyid A. Rahman. A., Renda F., El-Khasawneh B. Sequential Cable-Locking Control for Shape Morphing in Elephant Trunk-Inspired Manipulators. *ICRA* (2026).

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

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

Dr. Ma Yue
Associate Professor, Department of Mechanical Engineering, Beijing Institute of Technology, Beijing, China
Phone: +86-1068918489
Email: armcynicism@bit.edu.cn

Er. Ram Prasad Poudel
Associate Professor & Campus Chief, Department of Mechanical Engineering, IOE, Western Region Campus, Pokhara, Nepal
Phone: +977-9842171050
Email: 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