

TRIPATHI GYANENDRA NATH (PhD, Eng.)

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OBJECTIVE:

To obtain a research and development opportunity, with playing R&D responsibility and a healthy work environment with opportunity to explore my leadership qualities along with doing research, that will allow me to contribute for futuristic research and development in the area of Embedded and Robotics/Mechatronics using my experience and technical skills.

WORK EXPERIENCE: (2.5-year Academic + 8.5-year Industry) **(Embedded System for FA | Robotics Motion Planning | Cognitive and AI)**

9/2025-Present	University of Tsukuba	Tsukuba, Japan
9/2025-10/2025	Visiting Researcher	
11/2025-Present	Researcher	

6/2022-3/2025	Panasonic Industry	Osaka, Japan
Researcher		

- Visual feed-back control MATLAB simulation.
>Visual feedback for position error is generated with high speed camera interfaced with FPGA board and algorithm implemented using digital circuit. The feed-back used for motion control algorithm running on motor control board.
- Conceptualization of AI system and its embedded system implementation strategy for motor/PLC control amplifier.
>Overall system architecture for AI based system to be used for Anomaly detection.
- I-shaped industry HW/SW architecture
>HW/SW architecture design and project implementation for the new concept of I-shaped industry architecture for control.
- Courses to developing control system for research purpose (Linux based embedded system, FPGA based HIL system)

11/2021- 3/2022

ADVICS Co., Ltd.

Kariya, Aichi, Japan

R&D Eng. (Training)

- R&D Electronic Control Unit (ECU) system for advanced braking system control of CAR.
- Analysis for feasibility of 2-motor control Electronic Control Unit (ECU) as enhancement of current ECU.
 >Car brake system uses motor control for brakes of all 4 wheels, where one motor is controlled by one ECU, to make it cost effective explored the possibility of controlling 2 motors using one ECU.

10/2020-10/2021

Hitachi Research Lab

Hitachi, Ibaraki, Japan

Senior Researcher

- Research project corresponding HW/SW system architecture for robot control and factory automation related control, a control system between physical level and network level.
 >In case of collaborative robotics HW/SW system needed to have a synchronized control of two robots along with the planning of robot motion.
- Construction machinery project: AI based simulation for autonomous control.
 >MATLAB simulation for construction machinery is very complex and simulation run time is very large, to minimize simulation run time to make it considerable in real-time AI model is supposed to be used to replace physical model.

4/2016-9/2020

Renesas Electronics

Tokyo, Japan

R&D Engineer

- **R&D Engineer (Project In-charge):** HW evaluation of new board and SW development for board for industrial network based motor control.
 > As project in-charge technically lead the project from scheduling to execution with V-model approach (Requirement assessment/ Board (HW) circuit design/ SW design basic design to deploy after receiving board from PCD design vendor/ Detail Design/ Test Design/Test execution/Documentation at every stage).
- **R&D Engineer (Project In-charge):** Current based anomaly detection for motor control using AI, Patent for Microcontroller based system for AI based anomaly detection.
 > As project in-charge technically lead the project from scheduling to execution with V-model approach (Requirement assessment/ SW design basic design/ Detail Design/ Test Design/Test execution/Documentation at every stage)
 > This project also included task of patent analysis and patent writing as project in-charge
- **R&D Engineer (Team member):** Motor control software development and SW management.

Research project for Decoupling control, Resolver SW development team member.

- **R&D Engineer Trainee:** Sample software development for Microcontroller Initialization, Timer (Motor Control), ADC interface, Serial communication. Embedded software development, test process and software quality.

5/2012-4/2013 **Mody Institute of Technology and Science** **Laxmangarh, Sikar, India**

- **Assistant Professor**, Course development, Teaching Courses, Lab Management, Student evaluation, Student project guide and evaluation. Faculty head of student Robotics Club.

11/2011-1/2012 **Indian Statistical Institute** **Bangalore, India**

- **Senior Research Fellow** on project from Department of Science and Technology, India.

1/2011-11/2011 **ITM Universiy** **Gurgaon, India**

- **Assistant Professor**, Course development, Teaching Courses, Lab Management, Student evaluation, Student project guide and evaluation. Founder and Faculty head of student Robotics & Intelligent System Club.

7/2010-12/2010 **Lovely Professional University** **Phagwara, Punjab, India**

- **Assistant Professor**, Course development, Teaching Courses, Lab Management, Student evaluation, Student project guide and evaluation. Founder and Faculty head of student Robotics & Intelligent System Club.

EDUCATION:

- **Kyushu Institute of Technology, Ph.D. Eng.**, Kita-Kyushu, Japan (April 2013– March 2016)
- **PEC University of Technology, Master of Engineering** in Electronic Product Design and Technology, Chandigarh, India (July 2008- June 2010)
- **Kumaun University, Bachelor of Engineering** in Electronics and Communication (July 2004- June 2008)

QUALIFICATIONS:

- Industrial Robot Safety certification (6/2021)
- Driving License in Japan (5/2021)
- Business Level Communication in English (Read/Write/Speak), TOEIC score 875 (2015).
- Japanese Language JLPT N3 (12/2017) and BJT Level J3 (4/2019)

AWARD & ACHIEVEMENTS:

1. Monbukagakusho Honors Scholarship, (JASSO) (2013/4～2014/3)
2. Yoshikawa Foundation Scholarship (2014/4～2016/3)
3. KDDI Foundation Scholarship (2015/4～2016/3)
4. Graduate Aptitude Test Engineering (GATE), India: ~95 percentile (2013)
5. Bachelor of Engineering with honors (78.9%), Master of Engineering (9 CGPA/10), PhD(3.43 GPA/4)

ADDITIONAL INFORMATION:

<u>Skill</u>	<u>Language</u>	<u>Hobby</u>
Creative	 Reading: R, Writing: W, Speaking: S	Tennis, Fitness Gym,
Analytical	 Hindi (Native: R/W/S)	Cooking, Drawing,
Problem Solving	 English (Professional: R/W/S)	Poetry, Philosophy,
Original Thinker	 Japanese (Intermediate: R/W/S)	Meditation.

PUBLICATION & PATENTS:

[Patents]

1. Inventor name: Sugawara, Nakamura, Tripathi Gyanendra Nath, Handa
Title of invention: Robot system and robot control device
Publication number: JP2023-77725(P2023-77725A), (Publication date: June 6, 2023)
2. Inventors: Tanaka, Sakata, Shimamura, Gyanendra Tripathi
Title of invention: Control device, control method for control device
Publication number: JP 2023-28829 (P2023-28829A), (Publication date: March 3, 2023)
3. Inventor name: Tripathi Gyanendra Nath
Title of invention: Control system incorporating an abnormality detection function and its abnormality detection method
Publication number: JP 2022-32631 (P2022-32631A), (Publication date: February 25, 2022)

[Book Chapter]

1. "Emotion Model for a Robot," Cyber-Physical Systems for Social Applications (pp. 86-97). IGI Global,
2. "Learner Attitudes Towards Humanoid Robot Tutoring Systems: Measuring of Cognitive and Social Motivation Influences," Cyber-Physical Systems for Social Applications (pp. 62-

- 85). IGI Global,
3. “Mobile Robot Motion Planning 'A Neural Network Approach” by GN Tripathi, V Rihani, Lambert Academic Publication 1, 84 ISBN-13: 978-3-659-25101-6, ISBN-10:3659251011
- [Journal Paper]**
4. Tripathi, G. N., & Wagatsuma, H. “PCA-Based Algorithms to Find Synergies for Humanoid Robot Motion Behavior,” International Journal of Humanoid Robotics 13 (02), 1550037,
 5. Tripathi, G. N., Kant, B., & Cheema, G. S. (2013). A Low Cost Wireless Interfacing Device between PS/2 Keyboard and Display. International Journal on Recent Trends in Engineering & Technology, 8(2), 78.

[Conference Paper]

6. Dimitrova, M., Wagatsuma, H., Tripathi, G. N., & Ai, G. (2015, June). Adaptive and intuitive interactions with socially-competent pedagogical assistant robots. In 2015 International Conference on Information Technology Based Higher Education and Training (ITHET) (pp. 1-6). IEEE.
7. Tripathi, G. N., Chik, D., & Wagatsuma, H. (2013, November). “How Difficult Is It for Robots to Maintain Home Safety?—A Brain-Inspired Robotics Point of View,” International Conference on Neural Information Processing (pp. 528-536). Springer, Berlin, Heidelberg.
8. Chik, D., Tripathi, G. N., & Wagatsuma, H. (2013, November). A Method to Deal with Prospective Risks at Home in Robotic Observations by Using a Brain-Inspired Model. In International Conference on Neural Information Processing (pp. 33-40). Springer, Berlin, Heidelberg.
9. “A method to evaluate intuitive sense by using a robotic tool: Towards engineering for assistive technology and accessibility,”International Conference on Universal Access in Human-Computer Interaction (pp. 561-569). Springer
10. “A Comparison of Joint Energy for Sit-Stand Motion Generated by Human learned Trajectories and Artificial Trajectories,”19th International Conference of Mechatronics Technology (ICMT-2015), Tokyo, Japan
11. Saito, M., Tripathi, G. N., & Wagatsuma, H. “A Neurorobotic Approach of Emotion: Implemented Neurodynamics Mediate a Coupling Between Top-Down Abductive Inference and Bottom-Up Sensations”, Abstract in Frontier in science: Neuro-robotics.
12. TRIPATHI, G. N., & WAGATSUMA, H. “Brain, Mind and Body: Motion Behaviour Planning, Learning and Control in view of Rehabilitation and Robotics”. INCF Japan Node

- International Workshop: Advances in Neuroinformatics 2015
13. Gyanendra, NATH TRIPATHI, K. A. T. S. U. K. I. Yuya, and S. H. O. J. I. Kenta. "Exploring of Neurorobotic Approaches Bridges Between Human Measurement Data and Model-Based Analyses-A Case of Standing-Up Motions for Rehabilitation in Developmental Stages of Cerebral Palsy and Convalescence Stage of Stroke." INCF 日本 ノード国際ワークショップ Advances in Neuroinformatics 2 (2014): 36.
 14. Anger is heat-conceptual metaphors of emotions in a robotic study. 情報処理学会研究報告. ICS,[知能と複雑系], 2014(3), 1-2.
 15. Neurorobotic Analysis of Standing-Up Motion for Development of An Assistive Device. POSTECH-KYUTECH Joint Workshop on Neuroinformatics, Kitakyushu, Japan, 14, 43-44, 2014.
 16. "Motion planning of an autonomous mobile robot using artificial neural network," International Conference of Advanced Computer Science & Information Technology (ACSIT-2012), arXiv preprint arXiv:1207.4931.

Academic Society Committee/membership

1. Robotics Society of Japan from 2020 onward
2. IEEE Robotics and Automation Society Technical Committee on Cognitive from 2020 onward
3. IEEE Robotics and Automation Society Technical Committee on Whole Body Control from 2023 onward
4. Activity and Behavior Computing 2024 (ABC2024) International conference, IEEE technically co-sponsored, Program Committee Member & Reviewer from 2024 onward

Paper Review

- [1] Program committee member (Session Chair/ Reviewer) 2024: Activity and Behavior Computing 2024 (ABC2024) International conference, IEEE Technically co-sponsored
- [2] Journal of Rehabilitation and Assistive Technologies Engineering Manuscript ID (RATE-23-0017) 2023 /11
- [3] International Conference on Sustainable Emerging Innovations in Engineering and Technology (Paper Review ID: 278/293/477/482/555) 2023/7
- [4] European Physical Journal Plus ISSN: 2190-5444 SOURCE-WORK-ID: b4aae22e-5686-483c-8f6c-4363080cc337 Springer Nature (New York, US) 2021/3
- [5] European Physical Journal Plus ISSN: 2190-5444 SOURCE-WORK-ID: 812a8b9b-d5f3-41f9-94cc-e93380e68923 Springer Nature (New York, US) 2021/1

