Jayesh Jayashankar
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Education

PhD, Neuroscience & Cognitive Science   **Expected May 2027**
University of Maryland, College Park, MD
        Dissertation Title: Adaptive pBCI-based Human-Robot Teaming using to optimize human performance
        Advisor: Dr. Rodolphe Gentili
Master of Engineering, Robotics   **May 2022**
University of Maryland, College Park, MD
Bachelor of Technology, Electronics and Communication Engineering   **May 2017**
SRM University, Chennai, India

Research Experience

Doctoral Researcher   **August 2022-Present**
Neuromotor Control & Learning Laboratory, Dept. of Kinesiology, College Park, MD
- Designed experiments to assess human mental workload during human-robot collaboration.
- Lead and assisted research studies involving EEG and behavioral data collections.
- Analyzed and processed EEG signals to obtain relevant measures of brain dynamics.
- Validated experimental results using statistical methods.
- Mentored undergraduate students to employ scientific methods to conduct research.

Research Assistant   **October 2021-July 2022**
Neuromotor Control & Learning Laboratory, Dept. of Kinesiology, College Park, MD
- Deployed object tracking capabilities for a humanoid robot to perform collaborative tasks.
- Designed a cognitive planning system for a humanoid robot to solve cognitive tasks efficiently.

Research Assistant   **March-October 2021**
Neuromechanics Laboratory, Fischell Dept. of Bioengineering, College Park, MD
- Assessed architectures to design a deep learning model to decode EMG signals.
- Deployed and tested a potential model to decode upper-limb movements of stroke survivors.

Teaching & Mentorship Experience

Graduate Teaching Assistant, Motor Control & Learning   **Jan 2024-Present**
Dept. of Kinesiology, College Park, MD
- Facilitated labs consisting of lectures, running experiments, validating data, and interpreting results.
- Graded student's lab reports and exams.
- Assisted student's projects through discussions and office hours.

Graduate Teaching Assistant, Cybernetic Human   **Aug 2023-Dec 2024**
Dept. of Kinesiology, College Park, MD
- Facilitated discussions involving topics such as rehabilitative and assistive devices, neural control, and BCIs.
- Assisted with exams, grading, and project planning.

Graduate Teaching Assistant, Walking   **May-August 2024**
Dept. of Kinesiology, College Park, MD
- Responsible for grading assignments involving the benefits and best practices of walking for physical and mental health.

Graduate Teaching Assistant, Perception of Autonomous Robots   **January-May 2022**
A. James. Clark school of engineering, College Park, MD
- Planned assignments and projects to employ mathematical vision methods for object recognition.
- Graded and evaluated student's assignments and reports.

Summer Student Mentor   **May- July 2023, May-July 2024**
Dept. of Kinesiology, College Park, MD
- Mentored multiple students as part of UMD's STAR/ADAPT summer program.
- Taught students to record EEG data and assess behavioral data.
- Assisted in designing student's posters as part of their program.

Professional Experience
Software Engineer   July 2017-Aug 2020
Fidelity Investments, Chennai, India
- Resolved issues on the Mainframe & Web application platforms in the business of equity compensation.
- Followed agile practices to solve technical issues by collaborating with teams across India and USA.
- Fixed code involving financial transactions followed by integration testing to validate fixes.
- Monitored and validated production deployments.
- Performed quality control on Company Match Projects in the 401(K) Retirement Plan Services.
- Designed codebase as per clients' requirements and validate the same through test cases.

Conference Presentations
1. **Jayesh Jayashankar**, Anna Packy, Arya Teymourlouei, Alexandra Shaver, Garrett Katz, James Reggia, James Purtilo, Rodolphe Gentili, "*Assessment of a Novel Virtual Environment for Examining Cognitive-Motor Processes During Execution of Action Sequences in a Human-Robot Teaming Contex*t", Human Computer Interaction International (HCII), July 2024, Washington DC.
2. Anna Packy, **Jayesh Jayashankar**, Arya Teymourlouei, Joshua Stone, Hyuk Oh, Garrett Katz, James Reggia, James Purtilo, Rodolphe Gentili, "*Neurocognitive Assessment Under Various Human-Robot Teaming Environments*", Engineering in Medicine and Biology Society (EMBC), July 2024, Orlando, Florida.
3. **Jayesh Jayashankar**, Li-Qun Zhang, "*Combining CNN with LSTM for Real Time Decoding of Multi-Joint Arm Movements in Stroke Survivors*", Rehabweek 2021, Abstract & Poster 171.

Publications (Conference Proceedings)
1. Jayesh Jayashankar, Anna Packy, Arya Teymourlouei, Alexandra Shaver, Garrett Katz, James Reggia, James Purtilo, Rodolphe Gentili Assessment of a Novel Virtual Environment for Examining Cognitive-Motor Processes During Execution of Action Sequences in a Human-Robot Teaming Context. In: Schmorrow, D.D., Fidopiastis, C.M. (eds) Augmented Cognition. HCII 2024. Lecture Notes in Computer Science, vol 14694. Springer, Cham.
2. Anna Packy, **Jayesh Jayashankar**, Arya Teymourlouei, Joshua Stone, Hyuk Oh, Garrett Katz, James Reggia, James Purtilo, Rodolphe Gentili, "Neurocognitive Assessment Under Various Human-Robot Teaming Environments", Engineering in Medicine and Biology Society (EMBC), 2024.
3. Jayesh Jayashankar, Anna Packy, Arya Teymourlouei, Hyuk Oh, Garrett Katz, James Reggia, James Purtilo, Rodolphe Gentili, "Cortical dynamics underlying team performance in human-robot collaborative work under varying task demand", ICRA 2025 (In-Review).

Honors & Awards
1. Best Paper Award for the 18th International Conference on Augmented Cognition, in the context of HCI International 2024, Washington DC, USA, 29 June - 4 July 2024.
2. Funded by the Maryland Robotics Center's (MRC) pathways programto pursue research in the field of human-robot interaction and cognitive-motor neuroscience.

Professional Memberships
1. North American Society for the Psychology of Sport and Physical Activity (NASPSPA) member.
2. Collaborative Institutional Training Initiative (CITI) certification.

Skills
Programming: C++, C#, Python
Technical: MS Office, MATLAB, ROS, OpenCV, Git, R, EEGLAB, MATLAB,
Research: EEG Data Collection, Statistical Analysis, Planning & Designing Experiments, Manuscript Writing