Shrirang Patil

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SKILLS

Programming/Web: Python, C++, SQL, R, JavaScript, TypeScript, Bash, MATLAB, HTML5, CSS3
Front-End/UI: React, Next.js, Redux, Material-UI, Figma, Responsive Design, UX/UI Principles
Back-End/Cloud: Node.js, Express, REST, MongoDB, PostgreSQL, AWS(EC2, S3), Git/Github, Docker, Firebase, CI/CD, Google Cloud
AI/ML/Data: PyTorch, TF, scikit-learn, Hugging Face, NLP, LLM Fine-Tuning, Speech Recognition/Synthesis, Computer Vision
Soft Skills: Agile Development, Experimental Design, Cross-Functional Collaboration, Technical Mentorship, Public Speaking

WORK EXPERIENCE

Graduate Teaching Assistant - Electrical Engineering and Computer Science supervised by Calvin Hughes Sep 2025 - Dec 2025
Oregon State University, Corvallis, OR, USA

- Leads discussions, grades assignments, and provides student support for CS325 - Analysis of Algorithms and CS352 - Intro to Usability Engineering, improving student understanding and course engagements.

Graduate Research Assistant - Electrical Engineering and Computer Science advised by Dr. Heather Knight Dec 2023 - Dec 2025
Oregon State University, Corvallis, OR, USA

- **Designed** and conducted **HRI study**, with a team of 3 researchers to collect and **analyze robot trajectory and verbal commands data** for 30 participants, dataset published on Kaggle, findings published at ICSR 2025
- **Developed** and **co-led** integration of a Speech2Action system enabling voice-guided underwater robot arm manipulation, **achieving an 85% task success rate (vs. 70% baseline)**, published at OCEANS 2025
- **Developed** and piloted a conversational AI "Clipboard" to guide robot experiment setup and data collection, supporting multi-condition trials; **improved protocol adherence and error tracking**, published at FoMoSR ICSR 2025
- **Developed** LLM-powered robot modalities for mindfulness, leading meditation sessions and piloting affective speech-to-gesture mapping with Pepper robot; published at LLMs in HRI 2024
- **Secured** $25K OSU grant and developed scalable AI-powered Flask web app for speaker-listener communication, reducing transcription latency from 1.0s to 0.7s, with 94% intent recognition accuracy, real-time multimodal feedback

Undergraduate Researcher - Information Systems and Analytics advised by Dr. Tan Wee Kek Dec 2022 - May 2023
National University of Singapore, Singapore, Singapore

- Developed **multilingual ASR** system with **CNN+RNN** (Bidirectional GRU) architecture for **MFCC** feature extraction, achieving 92% accuracy across 125 syllable classifications on OpenSLR dataset comprising 27 languages, worked with 4 researchers
- Engineered novel **Reconstructed Phase Space** feature extraction AutoML pipeline using spatial-temporal CNNs and LSTM networks to process 10,000+ audio files containing consonant-vowel pairs, improved robustness compared to traditional

Robotics Developer Intern Feb 2022 - Mar 2022
Bolt IoT Inventrom Private Limited, Bengaluru, India

- Designed a robot controlled by google assistant **API** for **voice commands**, achieving a navigation success rate of 90% in avoiding obstacles, increasing user interaction and accessibility for individuals with mobility challenges

PROJECTS

- **AI-Powered Speaker-Listener Communication System** [GitHub]
  Designed and developed full-stack AI-powered Flask web app for speaker-listener communication, **reducing transcription latency from 1.0s to 0.7s, with 94% intent recognition accuracy**, real-time multimodal feedback
- **Python based Humanoid Robot Animation Framework** [GitHub]
  Built Python-based markup and parser **reducing script-to-action time by 40%**, and mentored undergrad honors thesis on Text-to-Pepper-Robot Animator; project research here
- **EmotionSport Neural-Powered Athletic Performance Analysis System** [GitHub]
  Developed a **sports facial emotion analysis system** testing CNN and Bi-LSTM models, attaining **90.67% accuracy** on CK+485 dataset, providing **quantified emotional metrics** (frequency, intensity, duration) adding to player performance insights
- **Multilingual ASR System for Cultural Communication** [Project Report]
  Analyzed multilingual ASR system using CNN+RNN (Bi-GRU) and engineered a spatial-temporal CNN-LSTM AutoML pipeline, **achieving 92% accuracy on 125 classes** (27 languages, 10,000+ files)

EDUCATION

Master of Science - Artificial Intelligence|GPA : 3.76 Sep 2023 - Dec 2025
Oregon State University, Corvallis, OR, USA

Bachelor of Technology - Computer Science and Engineering (AI and ML)|GPA : 3.60 Jul 2019 - Jun 2023
Vellore Institute of Technology, Bhopal, MP, INDIA