Sharmita Dey

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https://scholar.google.com/citations?user=dRn_bawAAAAJ&hl=en | https://github.com/sharmita01/Coursework_projects |

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About me: I am a deep learning enthusiast. My research is focused on the conceptualization, development, and implementation of deep learning/machine learning-based control algorithms for intelligent context-aware lower limb prostheses/orthoses/exoskeletons. I am also a Kaggle contributor.

WORK EXPERIENCE

20/06/2018 – CURRENT – Goettingen, Germany
PHD RESEARCHER – APPLIED REHABILITATION TECHNOLOGY LAB, UNIVERSITY OF GOETTINGEN

- Researched and implemented a **temporal convolutional neural network-based real-time** foot kinematics prediction system
- Conceptualized and developed a **transfer learning-based ensemble model** to improve the practicability of a prosthesis control model
- Sensor data acquisition, processing, analyses, and **feature engineering**
- Published work at five venues (IEEE, Frontiers)
- Reviewed machine learning applications-based scientific papers for the IEEE journals

Used: **Python, Tensorflow, CUDA, Sci-kit learn, NumPy, SciPy, Hardware/sensors (Raspberry Pi, Arduino, IMU, surface EMG electrodes)**

Coursework projects

- Implemented **MLP** and **CNN model** for image classification on the MNIST dataset
- Implemented a **ResNet architecture for image classification** on the CIFAR-10 dataset
- Deployed transfer learning using the **ResNet18 model** for classification on the CIFAR-10
- Implemented a **saliency model** for estimating fixations in images using **CNN** and transfer learning on the **VGG19** model.
- Implemented a **variational autoencoder model** for image generation on the Fashion-MNIST dataset.
- Implemented a **Gated Recurrent Unit network** for human gait variable prediction
- Transfer learned on a **BERT model** for sentiment classification.
- Controlled a virtual biped walker using **reinforcement learning**

Used: **Python, PyTorch, TorchVision, NumPy, SciPy, Jupyter Notebook, Colab, MatLab Reinforcement learning toolbox**

03/04/2017 – 30/05/2018 – Oberpfaffenhofen, Germany
RESEARCH ASSISTANT – GERMAN AEROSPACE CENTER (DLR), INSTITUTE OF ROBOTICS AND MECHATRONICS

Generalized decoding of control commands from surface EMG signals - *Master Thesis and Internship in Cognitive robotics*

- Combined **Gaussian process regression** with **support vector machines** for intent recognition from surface electromyography signals
- Employed a **transfer learning framework** for robust online control commands generation for a surface EMG controlled robotic arm
- Employed **DBScan clustering** for noise filtering and smooth velocity encoding
- Developed an EMG controlled simulation framework for goal reaching tasks and tracking
- Successfully tested the proposed architecture on the simulation software

Used: **Python, NumPy, SciPy, Matlab, Simulink, Stateflow, Virtual Reality Modeling Language**

28/10/2011 – 17/02/2015 – Bangalore, India
PROGRAMMER – COGNIZANT TECHNOLOGY SOLUTIONS

- Developed UI based web applications and wrote custom codes for an order management system

Used: **Java, HTML, CSS, AngularJS**

EDUCATION AND TRAINING

10/2015 – 06/2018
MASTER OF SCIENCE IN COMPUTATIONAL LOGIC – Technische Universität Dresden, Institute of Artificial Intelligence, Dept. of Computer Science

- Machine Learning grade: 1.0 (*highest grade*)