

PERSONAL INFORMATION Muthukumar Pandaram

📍 Coppistr. 20, 10365 Berlin

📞 +4915175552738

✉ pmkumar1308@gmail.com

🌐 <https://www.linkedin.com/in/muthukumparpandaram/>

Summary A versatile and analytical Master's student in Computational Neuroscience with over 2 years of research experience gained through working at different research labs across the world. Possess a Bachelor's in Mechanical Engineering with demonstrated skills in robotics, analysis of neural data and machine learning. Passionate about working at the intersection of neuroscience, Robotics and AI.

EDUCATION AND TRAINING

Oct 2020 – Dec 2023 Master of Science – Computational Neuroscience

Technical University of Berlin, Berlin (Germany)

- Deutschlandstipendium (German National Scholarship) recipient for the academic year 2020-21, awarded by BMBF, Germany and a private sponsor.
- **Master thesis:** Optimisation of the parameter space for deep brain stimulation fiber filtering across neuropsychiatric disorders, *Supervisor: Prof. Dr. med. / PhD Andreas Horn, Harvard Medical School*
- **GPA:** 1.6

Jul 2014 – Apr 2019 Bachelor of Engineering – Mechanical Engineering

PSG College of Technology, Coimbatore (India)

- **CGPA:** 9.52/10 (Batch Topper and Gold Medallist)

ADDITIONAL INFORMATION

Publications **Empirically identifying and computationally modelling the brain-behaviour relationship for human scene categorization.** Karapetian A, Boyanova A, Pandaram M, Obermayer K, Kietzmann TC, Cichy RM. J Cogn Neurosci. 2023 Nov 1;35(11):1879-1897.

Soft tactile sensors with variable compliance. Azim, S., Srinivasan, A., Pandaram, M., Kow, J., De Boer, G., Wang, H., Alazmani, A. and Culmer, P., 2017. In 2017 IEEE SENSORS (pp. 1-3). IEEE.

Lab Rotation Projects **Neural Mechanisms of real world visual categorical decisions**, Neural Dynamics of Visual Cognition Lab, FU Berlin, *Supervisor: Prof. Dr. Radoslaw Martin Cichy*

Context based classification using a bandit modulated feed forward classifier, Sprekeler Lab, TU Berlin, *Supervisor: Prof. Dr. Henning Sprekeler*

Optimising volume of tissue activated threshold parameter for deep brain stimulation fiber filtering, NetStim Lab, Charité - Universitätsmedizin Berlin, *Supervisor: Prof. Dr. med. / PhD Andreas Horn*

Relevant Courses taken Machine Intelligence, Models of Higher Brain Function, Acquisition and Analysis of Neural Data

Technical Skills **Programming Languages:** C, C++, Python, MATLAB

Middleware: ROS

Other: PyTorch, OpenCV, Docker, Git, Linux(Bash), Gazebo, PyBullet

CAD/CAE: PTC Creo, SolidWorks, ANSYS, Abaqus

WORK EXPERIENCE

- Mar 2024 – July 2024 **Senior Software Engineer-Robotics and AI**
Surgical Robotics R&D, Meril Healthcare, Chennai (India)
– Developing motion control software for teleoperated robotic surgery.
– Developing 3D reconstruction and segmentation of medical images for pre-operative planning.
Skills acquired: Git, CI/CD, Python, Deep Learning, Linux, ROS, OpenCV, PyTorch
- Nov 2022 – Jan 2024 **Working Student**
Manipulator Cluster, Gestalt Robotics, Berlin (Germany)
– Developed a grasping solution for bin picking using open source models like DexNet.
- Mar 2021 – Oct 2022 **Student Research Assistant**
Robotics and Biology Lab, Technical University of Berlin, Berlin (Germany)
– Developed the control hardware for soft robotic hands using proportional valves and flow sensors using ROS as middleware. (Funded by Science of Intelligence excellence cluster)
Supervisor Prof. Dr. Oliver Brock
- Nov 2019 – May 2020 **Research Intern**
Centre for Alternate Cooling Technologies, PSG College of Technology, Coimbatore (India)
– Developed an experimental apparatus for evaluating the performance of a Solar Assisted Liquid Desiccant based air-conditioning system.
Supervisor Prof. Dr. Madhu Ganesh
- May 2019 – Aug 2019 **Undergraduate Research Intern**
Robotics and Manufacturing Automation Lab, McMaster University, Hamilton (Canada)
– Modified a custom written open-source numerical solver in MATLAB and C++ for simulating the hyperelastic behaviour of soft robotic actuators.
Supervisor Prof. Dr. Gary Bone
- Dec 2018 – Feb 2019 **Research Intern**
Medical Mechatronics Lab, National University of Singapore, Singapore (Singapore)
– Interfaced a battery-less NFC based transponder platform to get data from analog sensors developed at the Singapore Institute of Neurotechnology through an Android app.
Supervisor Prof. Dr. Hongliang Ren
- May 2018 – Jul 2018 **Summer Research Fellow**
Manufacturing Engineering Section, Indian Institute of Technology, Madras, Chennai (India)
– Developed an algorithm for automated registration of design surfaces (in NURBS surface format) and the manufactured surfaces for inspection of free form surfaces.
Supervisor Prof. Dr. Samuel G.L
- May 2017 – Jul 2017 **Research Intern**
Surgical Technologies lab, University of Leeds, Leeds (United Kingdom)
– Developed a finite element model in ABAQUS to simulate the hyperelastic behaviour of a soft tactile sensor body and compared the different hyperelastic models.
Supervisor Prof. Dr. Peter Culmer and Prof. Dr. Ali Alazmani