Curriculum vitae

PERSONAL INFORMATION

Muthukumar Pandaram

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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 control, robotics and machine learning techniques. Passionate about working at the intersection of Neuroscience, AI and Robotics.

EDUCATION AND TRAINING

Oct 2020 – Present

Master of Science – Computational Neuroscience

Technical University of Berlin, Berlin (Germany)

- **CGPA:** 1.74
- Deutschlandstipendium (German National Scholarship) recipient for the academic year 2020-21, awarded by BMBF, Germany and a private sponsor.

Jul 2014 – Apr 2019

Bachelor of Engineering – Mechanical Engineering

PSG College of Technology, Coimbatore (India)

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

WORK EXPERIENCE

Nov 2022 – Present

Working Student

Manipulator Cluster, Gestalt Robotics, Berlin (Germany)

- Creating a flexible bin picking solution for industrial automation.

Mar 2021 – Oct 2022

Student Research Assistant

Robotics and Biology Lab, Technical University of Berlin, Berlin (Germany)

- Set up the control hardware for soft robotic hands using proportional valves and flow sensors using ROS as middleware. (Project 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 pneumatic actuators. (Selected through MITACS funding program)

Supervisor Prof. Dr. Gary Bone

Dec 2019 – Feb 2019

Research Intern

Medical Mechatronics Lab, National University of Singapore, Singapore (Singapore)

– Developed thermo-mechanical finite element models in ANSYS which coupled the viscoelastic behaviour of hydrogels and the shape memory effect exhibited by nitinol wires.
– Interfaced a battery-less NFC based transponder platform to get data from analog sensors developed at the Singapore Institute of Neurotechnology (SINAPSE) 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)

– Was one of 20 Summer Fellowship students selected from across the country.
– Developed an algorithm for automated registration of design surfaces (in NURBS surface format) and the manufactured surfaces (reconstructed from 3D LASER scanned Point clouds) 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

PERSONAL SKILLS

Mother tongue Tamil

Other Language(s) English (CEFR level C1), German (CEFR level A1)

ADDITIONAL INFORMATION

Publication **Soft Tactile Sensors with Variable Compliance**, Shehran Azim, Abhinandan Srinivasan, Muthukumar Pandaram, Junwai Kow, Greg de Boer, Hongbo Wang, Ali Alazmani, Peter Culmer, IEEE Sensors,2017

Lab Rotation Projects **Neural Mechanisms of real world visual categorical decisions**, Neural Dynamics of Visual Cognition Lab, FU Berlin

Context based classification using a bandit modulated feed forward classifier, Sprekeler Lab, TU Berlin

Finding optimal parameters for Fiber Filtering in Deep Brain Stimulation, NetStim Lab, Charité - Universitätsmedizin Berlin

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

Middleware: ROS

Other: PyTorch, OpenCV

CAD Modelling Packages: PTC Creo, SolidWorks