Bjarke Larsen

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Recently finished a MSc in robotics from the University of Southern Denmark. Now pursuing the first step in a career to apply the knowledge to overcome real-world challenges with a combination of software and hardware.

Personal Qualities

- Wide array of knowledge and skills in both software and hardware.
- Strong in judging when suggestions or solutions will work in practice.
- Meticulous in performing any task and prioritizes quality highly.
- Creative, quick at learning, and not afraid to take on new and exciting tasks.

Competences and Skills

- C/C++, Python, VHDL, Assembler, Matlab, Mathematica, OpenCV, ROS
- Fusion 360, Inventor, Blender
- 3D printing, laser cutting
- Danish: *Primary language*
  English: *Fluent in writing and speech*

Education

2019 – 2021 **MSc in Engineering (Advanced Robotics Technology), University of Southern Denmark**
Advanced in AI, computer vision, and robot control based on industrial applications and robot arms.
Primary interests: human-robot interaction (HRI), biorobotics, and soft robotics.

2016 – 2019 **BSc in Engineering (Robot Systems), University of Southern Denmark**
Gained basic skills in programming (primarily C++), electronics, AI, computer vision, and robot control.
Acquired proficiency in 3D modeling, 3D printing, and laser cutting.

2012 – 2015 **HTX, Syddansk Erhvervsskole**
Speaker for the group when presenting a game concept/prototype for people from the gaming industry in Austin during a month-long stay in Texas.
Main courses: communication & IT, English, and social studies.

Projects at University of Southern Denmark

Master's thesis, Sep. 2020 – Jun. 2021

Communication Through Softness — a Visual Aid for Handover in Collaborative Robotics

With a soft robotics HRI project during COVID-19, I quickly adapted by learning to model and animate in Blender to work through the lack of access to labs, and circumvent social distancing with an online survey. With less restrictions by the end, I put in the extra work and constructed the initially desired physical prototype and experiment as well.
With the regular projects always being group based, I chose to work alone for my master's thesis.

Projects at University of Southern Denmark (continued)

Currently working on a publication based on the thesis.

Equipment and methods		
Hardware	Programming and Software	Prototyping
UR5e	Python	Silicone casting
Robotiq Hand-E	Fusion 360	3D printing
Arduino	Blender	

Resulting grade: 12 (A)

7th semester project, Sep. 2019 – Dec. 2019

Pick and Place Combined with Pose Estimation

Implemented linear interpolation with parabolic blends for trajectories for a UR5 robot arm and pose estimation with sparse stereo using OpenCV.

Bachelor's project, Jan. 2019 – Jun. 2019

Adaptive Gait Generation for a Hexapod Robot in Unstructured Environments

Worked in simulation with V-rep and ROS — programming in C++.
Implemented variable gaits for the hexapod robot generated by a central pattern generator (CPG) and obstacle avoidance based on Braitenberg Vehicles.

Resulting grade: 10 (B)

5th semester project, Sep. 2018 – Dec. 2018

Marble Collecting with a Mobile Robot

Implemented q-learning from scratch in C++, obstacle avoidance based on a fuzzy logic controller, and handled input from a laser scanner.
Used OpenCV to detect marbles in a simulated environment (Gazebo).
Worked coordinated in a group of three people to make the robot accomplish the goal.

Additional Skills and Activities

I have basic knowledge of German from school, and recently I took two levels of introductory Chinese with the intent of learning more in the future.
Primary hobbies currently include: taking pictures, leather crafting, and playing a variety of instruments.