

Balamurugan Thambiraja

Master of Science in Informatics

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Profile

- Over 2 years of experience in C++ / python-based application development.
- Experienced in working with state-of-the-art deep learning, 2D/3D computer vision, autonomous driving and 3D tracking/reconstruction algorithms.
- Experienced in working with scrum and agile development methodologies.

Education and Qualifications

10/2017 – Present



M.Sc. Informatics, Technical University of Munich.

Principal subjects: Deep Learning, 3D Scanning and Motion capture, Tracking and Detection using Computer Vision, Mathematical tools for Computer Vision.

03/2011 - 05/2015

B.E. Electrical and Electronics Engineering, Kumaraguru College of Technology, Coimbatore, India.

Technical Info

Interests	Deep learning, 3D Scanning and Reconstruction, Machine learning, Autonomous driving and Application development.
Programming	Python 2.7 & 3, C++, UNIX / Linux Shell scripting, MATLAB.
Graphics	CUDA & OpenGL.
Frameworks	Pytorch, TensorFlow, NumPy, Cmake, OpenCV, Ceres, Eigen and ROS
Productivity	Jira, Slack, Confluence, Github.
CD / CI	Docker, Pipenv and Rundeck.
Languages	English (Fluent) and German (A2).

Work Experience

10/2019 – Present



Osram Automotive - Work student – AI / Computer Vision

- Develop, simulate, test and improve deep learning / computer vision-based algorithms for head and gaze tracking.

04/2018 – 09/2019



European Computer Telecommunication, Munich - Work student – Presales

- Key Tasks: Extensive research on competitors and designing use cases.
- Assisted the Presales team with system testing and product Demos.

07/2015 - 08/2017

wirecard

Wirecard India Private Limited, Chennai, India - Support Analyst

- Developed an Automation framework called "auto-connect" using Python, VB scripts and Shell scripting.
- Automated EOD card generation tasks using Python, Unix Shell scripting and Microsoft excel / Visual Basics.

Projects

09/2019 – Present



Human Model Learning

- Developed a self-supervised learning based human tracking and reconstruction algorithm.
- Built on Python3, Pytorch and Differentiable renderer.

05/2019 – 09/2019



Extending PointNet for Localization

- Developed relevance-based sampling algorithm for point clouds.
- Achieved state-of-the-art results in Carla and KITTI benchmark environments.
- Built on Python3, Pytorch and HDF5.

10/2018 – 05/2019



Human Performance Capture system using Depth Based Trackers

- Built a markerless tracking algorithm using SMPL model and depth map.
- Implemented the entire pipeline in Ceres solver using C++.
- Built a differentiable correspondence finder for SMPL mesh to depth map.

12/2018 – 02/2019



Classification and Pose Estimation using CNN and Triplet Loss

- Built a Siamese network based regressor with triplet loss.
- Built on Pytorch3, TensorFlow and wisdom server.

01/2018 – 02/2018



Interactive 3D shape deformation using ARAP

- Built an interactive system to deform 3D models / shapes using the Skeleton tracking and "As Rigid As Possible" (ARAP) Deformation algorithm.
- Implemented entire pipeline from mesh loading to nonlinear optimization in C++.

01/2015 – 03/2015



Density based Traffic Control System using Image Processing

- Built a system to direct traffic signal based on the density of the vehicles.
- Implemented the Vision algorithms in Matlab and integrated with Arduino.

Hobbies

- Reading books
- Playing Football

Munich, 30.03.2020

Balamurugan Thambiraja