



CHANDRAMOULI GNANASAMBANDHAM

Bromenlandweg 10
71034 Böblingen

+49 179 6588043

chandramouli681990@gmail.com

PROFILE

I am a passionately curious engineer with excellent intercultural communication skills. I have been first author of 6 peer-reviewed journal articles and have played a crucial role in several successful research proposals funded by the German Research Foundation (DFG). All this was possible, thanks to my exceptional adaptability to new/rapidly changing environments and my extraordinary analytical, project management and team working skills gained through my time at the academia. I am looking for a challenging opportunity as a senior software engineer, preferably in the field of autonomous driving, machine learning and artificial intelligence.

LANGUAGES

■■■■■ Proficient | German
■■■■■ Proficient | English
■■■■■ Mother tongue | Tamil
■■■■■ Advanced | Hindi

WEB

GITHUB

<https://github.com/chandramouli6890>



Linkedin

<https://linkedin.com/in/gnanasambandhamc>



Medium

<https://chandramoulig.medium.com>



Matlab

MatlabCentral Profil



TECHNICAL SKILLS

Programming Languages:

■■■■■ 8 years | C/C++
■■■■■ 8 years | Matlab
■■■■■ 5 years | BASH
■■■■■ 3 years | Python

Betriebssystem

■■■■■ Linux (Debian, Ubuntu)
■■■■■ Microsoft Windows

Software Skills:

- **Matlab/Simulink:** Modelling, simulation, numerical optimization, C/C++ MEX API, SiL/HiL simulations
- **Python:** Flask, NumPy, SciPy, Pandas
- **Multibody-Simulation:** LMS Virtual.Lab Motion, Neweul-M², MSC Adams, Project Chrono
- **Data Visualization:** Paraview, PlotlyDash, Matplotlib, Matlab
- **Other Software:** COMSOL Multiphysics, OpenSCAD, Blender with Python scripting, OptiSlang

Software Development Tools:

- **Technologies:** CUDA GPU Programming, PETSc, EIGEN, Object Oriented Programing (OOP), OpenGL
- **Version control:** Gitlab, Github, Gitflow Branching-Model
- **Development Environments:** vim, Visual-Studio Code, Eclipse
- **Debuggers/Profilers:** gdb, valgrind, calgrind, Intel VTune

PROFESSIONAL CAREER

April 2021

Submission of the doctoral thesis

Particle Dampers- Enhancing Energy Dissipation using Fluid/Solid Interactions and Rigid Obstacle-Grids

- Tentative date of the PhD thesis defence: **13.07.2021**

AWARDS

Best Presentation Award

Title: Optimization of Vehicle Parameters based on Lap-Time Simulations using Multiobjective Evolutionary Algorithm

This award was offered by ALTEN GmbH in the year 2015 and was endowed with a prize money of **500 €**.

Best Presentation Award

Title: An Adaptive Approach to Real-Time Estimation of Vehicle Dynamics Parameters using Kalman Filtering

This award was offered by ALTEN GmbH in the year 2014 and was endowed with a prize money of **500 €**.

SONSTIGE PROJEKTE

Juni 2014

Driver-in-the-Loop Simulator

As part of my work for the KaRaT Formula Student racing team, I have developed a driver-in-the-loop simulator based on a communication interface between IPG CarMaker and Matlab/Simulink.

Juni 2015

Machine Learning Suite

Implementation of a Deep Convolution Neural Network (Deep ConvNet) for optical character recognition as part of a freelance software project in Matlab. To increase performance the Matlab MEX API was used.

Juli 2020

Raspberry Pi NAS

As part of a hobby project, I had built a versatile Raspberry-Pi home network storage (NAS) device with multiple functions, for e.g. remote-ssh-access over the internet, automatic backups using `rsync`, DNS-server with integrated Pi-Hole ad-blocker and HomeBridge server for controlling IOT devices using siri.

PROFESSIONAL CAREER (CONTINUED)

May 2016 - April 2021

University of Stuttgart

Scientific staff member at the Institute for Engineering and Computational Mechanics (ITM)

- Main research areas:
 - Modelling and simulation of particle dampers with meshfree Lagrangian methods
 - Systematic investigation of underlying dissipation mechanisms in particle dampers
- Planning and execution of measurement campaigns of vibrating structures using the principles of experimental modal analysis and laser doppler vibrometry
- Development und administration of the particle simulation package **Pasimodo** in **C++**:
 - Development and implementation of efficient algorithms to adequately predict the dynamics of fluid-solid systems
 - Administration of bug-reports und merge-requests in **Gitlab**
 - Maintaining and developing of the nightly Build-System using the principles of continuous integration (CI)
 - Maintaining the distributed **C++** compilation system using **distcc**
 - Administration and development of software releases at regular intervals using the **Gitflow** Branching-Model
- Teaching activities:
 - Organisation und assistance for the lecture "Ground Vehicle Dynamics"
 - Execution of lab workshops for B.Sc. and M.Sc. students
 - Supervision of Bachelor- and Master-Thesis students

October 2015 - April 2016

Fraunhofer Institute of Industrial Mathematics (ITWM), Kaiserslautern

Student Employee in the department of Mathematics for Vehicle Engineering

- Implementation of a POD based model order reduction method for high-dimensional nonlinear finite element systems

October 2014 - September 2015

Daimler AG, Böblingen

Intern und Student Employee in the department of pre-development Suspension

- Design and development of a parametric characteristic curve for the numerical optimization of elastomeric suspension bushes using **optiSLang**
- Development of a tool to convert experimentally obtained hysteresis data to smooth parametric curves using curve-fitting algorithms in **python**

PROFESSIONAL CAREER (CONTINUED)

December 2013 - September 2014

► **German Research Center for Artificial Intelligence (DFKI), Kaiserslautern**

Junior Software Developer in the department of Embedded Intelligence

- Implementation of a sensor fusion algorithm for attitude determination of a system using a 9-axis inertial measurement unit in **C++**

EDUCATIONAL QUALIFICATIONS

October 2012- April. 2016

► **Master of Science Commercial Vehicle Technology**

Technische Universität Kaiserslautern, Grade: 1.9

Selected subjects: control theory, vehicle dynamics control, embedded systems, real-time systems, automotive software development.

June 2008- April 2012

► **Bachelor of Engineering Production Engineering**

Anna University, Chennai, India, Grade CGPA: 8.3/10 (**very good**)

June 1996- April 2008

► **School Education**

DAV Hr. Sec. School, Chennai, Indien, Score: 93/100 (**very good**)

SELECTED PUBLICATIONS

Gnanasambandham, C.; Fleissner, F.; Eberhard, P.: Enhancing the Dissipative Properties of PDs using Rigid Obstacle-Grids. *Journal of Sound and Vibration*, Vol. 484, p. 115522, 2020.

Gnanasambandham, C.; Stender, M.; Hoffmann, N.; Eberhard, P.: Multi-Scale Dynamics of PDs using Wavelets: Extracting Particle Activity Metrics from Ring Down Experiments. *Journal of Sound Vibration*, Vol. 454, pp. 1-13, 2019.

Gnanasambandham, C.; Schönle, A.; Eberhard, P.: Investigating the Dissipative Effects of Liquid Filled PDs using Coupled DEM-SPH Methods. *Computational Particle Mechanics*, Vol. 6, pp. 257-169, 2019.

Böblingen, Tuesday 1 June, 2021

Chandramouli Gnanasambandham