

# Curriculum Vitae – Ezhilmathi Krishnasamy

## Basic information

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**Name:** Ezhilmathi Krishnasamy  
**Date of Birth:** June 9, 1984  
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114 17 Stockholm  
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## Experience

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### Current employment:

**(2016-) PhD student in Computer Science**  
KTH Royal Institute of Technology  
Department of Computational Science and Technology (CST)  
Description: Scientific Computing in application with Computational Fluid Dynamics.  
Supervisor: Johan Jansson

**(2015-) PhD student in Computer Science**  
Basque Center for Applied Mathematics  
and Basque University  
Description: Scientific Computing in application with Computational Fluid Dynamics.  
Supervisor: Johan Jansson

### Previous employment:

**(2015) Research Assistant**  
Linköping University  
Department of Solid Mechanics  
Description: Worked on Design optimization and GPU implementation of it.

**(2014) Master Thesis Student**  
Simula Research Laboratory  
Department of High Performance Computing  
Description: Implemented the wave propagation finite difference method (stencil computation) on the multiple GPUs and Shared Memory Architecture.

## Higher education degrees

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**(2015) Master's in Specialization of Computational Science**  
Linköping University

- Numerical Methods ,Numerical Linear algebra and Optimization.
- Programming in Matlab, C/C++ and Parallel programming.
- Computational fluid dynamics,Heat transfer,Finite element methods and Continuum mechanics

Thesis:Hybrid CPU-GPU Parallel Simulations of 3D Front Propagation

(2012) **Master of Science in Energy and Environmental Engineering**

Linköping University

- Renewable energy methods-analysis and case studies.
- Energy efficient methods for the industry.
- Resource efficient products and their Life Cycle Analysis.

(2007) **Bachelor in Chemical Technology**

Anna University, India, Chennai

- Fluid Mechanics, Mass Transfer, Heat Transfer and Numerical Methods. Organic & Physical Chemistry, Material Science, and Material Technology,
  - Transportation Phenomena, Statistics and Linear Programming.
  - Chemical Engineering Thermodynamics, Chemical Reaction Engineering, Chemical Process Calculation and Chemical Process Industries Design.
- Thesis: Design of Debutanizer in Fluidized Catalytic Cracking

(2003) **Diploma in Chemical Technology**

Institute of Chemical Technology, India, Chennai

- Fluid Mechanics, Mass Transfer and Heat Transfer and Mechanical Operations.
- Physical Chemistry, Organic Chemistry, Process Engineering and Economics, Stoichiometry and Engineering Materials.
- Engineering Chemistry, Engineering Physics and Engineering Mathematics.

## Research Merits

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### Conferences:

1. Adaptive Direct FEM Simulation with Unicorn/FeniCS-HPC for CS1, 2018

Johan Jansson, Ezhilmathi Krishnasamy, and Massimiliano Leoni

2. Simulation of the HarshLab floating platform for offshore experimentation using FeniCS-

HPC, November 2017

One of several authors

### Papers:

1. Multi-GPU Implementations of Parallel 3D Sweeping Algorithms with Application to Geological Folding.

Ezhilmathi Krishnasamy, Mohammed Sourouri, and Xing Cai: Procedia Computer Science

2. Direct FEM large scale computation of turbulent multiphase flow in urban water systems and marine energy

Ezhilmathi Krishnasamy, Johan Hoffman, and Johan Jansson: ECCOMAS Congress 2016

3. Towards HPC-embedded. Case study: Kalray and message-passing on NoC

Pedro Valero-Lara, Ezhilmathi Krishnasamy and Johan Jansson

### Journal:

1. Time-Resolved Adaptive Direct FEM Simulation of High-Lift Aircraft Configurations

Johan Jansson, Ezhilmathi Krishnasamy, Massimiliano Leoni, Niclas Jansson and Johan Hoffman

Numerical Simulation of the Aerodynamics of High-Lift Configurations, pp.67-92

**Mater thesis:**

1. Hybrid CPU-GPU Parallel Simulations of 3D Front Propagation

Krishnasamy, Ezhilmathi

Linköping University, Department of Mechanical Engineering, Solid Mechanics

**Pedagogical merits:**

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**Teaching:**

- **High performance finite element modelling (edX MOOC)**  
Teacher (one of several)  
KTH Royal Institute of Technology, 2017- present
- **DD1331 Fundamentals of Programming 5.0 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019
- **DD1396 Parallel and Concurrent Programming in Introduction to Computer Science 3.0 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019
- **DD2325 Applied Programming and Computer Science 7.5 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019
- **DD1388 Program System Construction Using C++ 7.5 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019
- **SI1336 Simulation and Modeling 6.0 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019
- **DD1327 Fundamentals of Computer Science 6.0 credits**  
Teaching Assistant (TA)  
KTH Royal Institute of Technology, 2018-2019

**Educational Prize:**

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1. One of summer school participant at the **PRACE Summer of HPC** in 2013.  
And represented from Sweden. Spent two months in Edinburgh and Ljubljana.

**Research and Educational Merits**

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1. IVA Research2Business 100-list
2. MOOC-HPFEM with 10000+ participants, KTHs largest MOOC
3. Pilot projects at the highest echelon of the aerodynamics industry
4. Pilot project in UAV for autonomous navigation (Jetson GPUs)
5. Bicky Chakraborty Entrepreneur Program, 1 of 8 winners, KTH
6. KTH innovation startup (Icarus Digital Math)