

Sundaravelpandian (Sundar) Singaravel

Mechanical engineer / Building performance simulation engineer



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Born 28, November 1987
Nationality Indian



Profile Summary

- Development strategies for buildings and building systems
- Researching in a commercial environment
- Customer oriented working methodology
- Organised events for expats in Rotterdam and fellow students (in university)

Education

2009 - 2011

Master of Science in Sustainable Energy Technology (SET)
Eindhoven University of Technology (TU/e), Eindhoven, The Netherlands
Specialization: Sustainable energy for the built-environment

Master thesis

Building performance simulation for steering the research and development of Liquid Crystalline Window (Duration: 12 months)
http://www.bwk.tue.nl/bps/hensen/team/past/master/Singaravel_2011.pdf

Building performance simulation (BPS) tools were used to recommend a Liquid crystalline window manufacturer the direction in which they should develop their product, so that the comfort level in the building is high while consuming low energy. Working on my master thesis has given me the ability to:

- *Plan and work on projects independently*
- *Develop simulation models using energy and daylighting simulation tools*
- *Analyze data obtained through simulation*
- *Provide customer oriented results*

2005 - 2009

Bachelor of Technology in Mechanical Engineering
VIT University, Vellore, India

Bachelor thesis

Knowledge based parametric modeling of machine tools - Drills, Milling cutters and reamers (Duration: 6 months)

A user-interface to model 3D CAD models of machine tools in Solidworks was developed through macro programming in Solidworks. This project was done in a group of three and I developed the user-interface that models milling cutters.

Working on my bachelor thesis has given me the ability to:

- *Plan and work in teams*
- *Develop CAD models in Solidworks*

Publication

Submitted a paper on “Simulation-based support for product development of innovative building envelope components” in Automation in Construction, an ISI indexed journal

Work experience

Jan 2014 - Present

Sustainable energy engineer

Freelance consulting

Ongoing project

Energy savings techniques and feasibility of solar energy for a Hyundai dealer

Responsible for developing solutions for the built-environment by incorporating the following in it:

- **Energy saving**
- **Usage of solar energy**

Freelancing has given me the ability to

- *Understand and translate information from the client into project objectives and inputs*
- *Develop solutions that will add value to the client*
- *Understand the market situation to position my self in a strategic location*
- *Work in an Indian environment*

Apr 2012 - Oct 2013

Researcher / Assistant project leader (APL)

Cauberg-Huygen Raadgevende Ingenieurs BV, Rotterdam, The Netherlands

Responsible for investigating energy performance, comfort and fire safety in built-environment through energy and air flow simulation models. Projects done by me are in the following areas:

- **Energy performance co-efficient** of CO₂ driven ventilation systems
- **Indoor climate** (over- and under heating hours) in buildings
- **Wind comfort** around a building
- **Dilution factor of exhaust gas** from buildings
- **Fire safety engineering simulations** for parking lots
- **Sizing of ground source heat pumps**
- **Sizing of solar collectors**

Some of the research projects that were conducted by me are:

- Compilation of **commercially available smart materials** for FACET (an EOS-LT research project) <http://www.eosfacet.nl/en/home/>
- Formulation of a **commercial methodology** for wind comfort study with CFD
- Implementation of **parallel computing** for the CFD models developed in PHOENICS and Fire Dynamic Simulator (FDS)

Working in Cauberg-Huygen has given me the ability to

- *Research in a commercial environment*
- *Develop thermal energy models and Computational Fluid Dynamic (CFD) models for the built-environment*
- *Decide on the complexity of the model based on the project requirements*
- *Work simultaneously in more than one project in different areas*
- *Communicate and work in Dutch*

Skills

- **Thermal energy simulation softwares**
 - TRNSYS along with TRNFLOW , IES <VE> (*basic knowledge*), VABI (*basic knowledge*)
- **Computational Fluid dynamics softwares**
 - PHOENICS CHAM, FDS
- **Data processing softwares**
 - MATLAB, Octave, MS Excel
- **Optimization software**
 - modeFRONTIER (*basic knowledge*)
- **3D modeling softwares**
 - Google sketchup (*basic knowledge*), AutoCAD (*basic knowledge*), Blender (*basic knowledge*)
- **Daylighting simulation software**
 - Daysim

Languages

Tamil - Native language

English - Fluent

Dutch - Intermediate level

Extra Curricular Activities

June 2012

Co-Organizer for Expat Republic Rotterdam

(Duration: 1 year)

Expat Republic Rotterdam is an informal meet-up group to make new friends or just catch-up old once after work in a relaxed atmosphere. As a co-organizer, I:

- *Welcome all expats coming to the event*

- *For people who are new to the city; we try to make them feel at home and introduce them to new people*

June 2010

Treasurer / Founding member for Activity committee (AC)-SET

<http://www.acset.nl/old-acset.html> (Duration: 8 months)

As treasurer, I had to maintain the budget of AC-SET and organized educational like industrial visits and team-building events like pub quiz along with other committee members. Being a Treasures has given me the ability to:

- *Plan and work in a multicultural team and environment*

- *Organize social and educational events for fellow students*

Leisure activities

Photography, Watching movies and Listening to music.

References are available on request