

## Personal information

Surname(s) / First name(s) **Grunnet, Jacob Deleuran**  
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Nationality(-ies) Danish  
Date of birth May 25, 1981  
Gender Male



## Occupational field

**Control engineering and research, wind energy.**

## Summary

I'm an engineer/PhD who enjoys the challenges of analysing, designing and implementing control systems and achieving what was not possible before.

In general I'm very knowledge hungry and enjoy working on projects where I get the opportunity to set the bar a bit higher for the state of the art.

My current position as a control specialist at LAC engineering gives me the opportunity to develop high tech solutions for the wind energy industry.

## Work experience

Dates	May 2010 - present
Occupation or position held	<b>Specialist Engineer, Control</b>
Main activities	Development of advanced control algorithms, aeroelastic codes and health monitoring algorithms.
Name and address of employer	LAC engineering, <a href="http://www.LACengineering.com">http://www.LACengineering.com</a> .
Dates	July 2009 - May 2010
Occupation or position held	<b>Post Doc</b>
Main activities	Completion of wind farm simulation benchmark for Aeolus, <a href="http://ict-aeolus.eu">http://ict-aeolus.eu</a> .
Name and address of employer	Section for Automation and Control, Department of Electronic Systems, Aalborg University, <a href="http://www.control.aau.dk">http://www.control.aau.dk</a> .
Dates	December 2008 - June 2009
Occupation or position held	<b>Research Assistant</b>
Main activities	Development of a Matlab control synthesis toolbox for hybrid games as part of Multi-Form. See <a href="http://www.control.aau.dk/~grunnet/pahsctrl">http://www.control.aau.dk/~grunnet/pahsctrl</a> and <a href="http://ict-multiform.eu">http://ict-multiform.eu</a> .
Name and address of employer	Department of Computer Science, Aalborg University, <a href="http://www.cs.aau.dk">http://www.cs.aau.dk</a> .
Dates	September 2008 - December 2008
Occupation or position held	<b>Stagair (trainee)</b>
Main activities	Development of fault tolerant satellite formation control algorithms as part of Ph.D. project.
Name and address of employer	TEC-ECN (Section for Guidance and Navigation), European Space Agency/ESTEC, Noordwijk, The Netherlands.
Dates	2006 - 2008
Occupation or position held	<b>Lecturer</b>
Main activities	Frequency Domain Control: Teaching bachelor students control theory based on frequency domain techniques. Introduction to Spacecraft Engineering: Teaching bachelor students the basics of designing (electronic) systems for space deployment.

Name and address of employer	Department of Electronic Systems, Aalborg University, <a href="http://www.es.aau.dk">http://www.es.aau.dk</a> .
Dates	2000 - 2003
Occupation or position held	<b>Partner in the interested party Laxity I/S</b>
Main activities	Web design and software engineering.
Name and address of employer	Laxity I/S, Absalonsgade 34, 2. th, Aalborg 9000 (Denmark).
<b>Education and training</b>	
Dates	December 2005 - October 2009
Title of qualification awarded	<b>Doctor of Philosophy (Ph.D) in Electrical Engineering</b>
Principal subjects	Thesis: Automated Controller Synthesis for non-Deterministic Piecewise-Affine Hybrid Systems. I have gained knowledge in the following areas: <ul style="list-style-type: none"> <li>- Hybrid and discrete event systems.</li> <li>- Fault tolerant control</li> <li>- Independent research, covering problem formulation, literature surveys, algorithm design and documentation culminating in a thesis and a Matlab toolbox for control system design.</li> <li>- Supervising bachelor students in control engineering.</li> </ul>
Name of organisation providing education	The Doctoral School of Engineering, Science and Medicine, Aalborg University, <a href="http://phd.ins.aau.dk">http://phd.ins.aau.dk</a> .
International classification	ISCED 6
Dates	September 2000 - August 2005
Title of qualification awarded	<b>Master of Science in Engineering (M.Sc.E) - Control Engineering</b>
Principal subjects	Thesis: Towards Autonomous Mobile Robots - Localisation, Mapping and Control. I have gained knowledge in the following areas: <ul style="list-style-type: none"> <li>- Computer and Electrical Engineering.</li> <li>- Control Theory (design, implementation and test).</li> <li>- Project Management.</li> <li>- Satellite systems.</li> </ul>
Name of organisation providing education	Study Board for Electronics and Information Technology, Aalborg University, <a href="http://www.esn.aau.dk">http://www.esn.aau.dk</a> .
International classification	ISCED 5a
Dates	September 2003 - December 2003
Title of qualification awarded	<b>Exchange student at McGill University</b>
Principal subjects	Attended courses in robotics and spacecraft dynamics. Developed a real time communication system for a neutral-buoyancy robot used in a spacecraft robotics laboratory.
Name of organisation providing education	McGill University, Montreal, Canada, <a href="http://www.mcgill.ca">http://www.mcgill.ca</a> .
International classification	ISCED 5a
<b>Positions of Trust</b>	
Dates	2003-2004
Position	<b>Student representative in the Technology and Innovation Committee of the Danish Society of Engineers (IDA) (Appointed)</b> , <a href="http://www.ida.dk">http://www.ida.dk</a> .
Principal responsibilities	Observing and reporting the developments in the committee on behalf of the student society at AAU.
Dates	2002
Position	<b>Member of Electronics and Information Technology Study Board (Elected)</b> , <a href="http://www.esn.aau.dk">http://www.esn.aau.dk</a> .

Principal responsibilities

Tending the interests of students at the computer and electrical engineering studies at AAU in matters of curriculum revision, appropriation and evaluation of teaching, and approval of study and exam dispensations.

## Other Experience

Dates  
Occupation or position held  
Main activities

2003 - 2009  
**Systems Engineer on AAUSAT-II (Satellite)**  
Participant in development, testing, operational and management activities involving the student satellite AAUSAT-II. I Gained a lot of experience in large scale projects and development of hardware and software for space. The main areas include:  
– Mission management and systems engineering.  
– Satellite attitude control and determination.  
– Spacecraft electronics and software.  
– Mission operations: Software, testing, and commissioning.

Name of organisation

Student space group, Aalborg University, <http://space.aau.dk>.

Dates  
Occupation or position held  
Main activities

October - December 2004  
**Software Engineer Baumanetz (Satellite)**  
Low level communication software development for the on board computer used on the Russian student satellite Baumanetz.

Name of organisation

Student Space Group, Aalborg University, <http://space.aau.dk>.

Dates  
Occupation or position held  
Main activities

September - November 2004  
**Software Engineer SSETI-Express (Satellite)**  
Development of low level software for the European Space Agency financed SSETI-Express satellite. Primary focus was communication software for the on board computer.

Name of organisation

ESA Education department, European Space Agency/ESTEC, <http://www.esa.int/education>.

Dates  
Occupation or position held  
Main activities

Jan 2004 - July 2004  
**Experiment designer for ESA's student parabolic flight campaign 7**  
Development of hardware and software for a cubesat model used for testing an attitude control algorithm proposed for AAUSAT-II. Performing experiments on the SPFC7 zero-G flights.

Name of organisation

ESA Education department, European Space Agency/ESTEC, <http://www.esa.int/education>.

## Personal skills and competences

Mother tongue(s)

**Danish**

Other language(s)

English and German

*Self-assessment  
European level<sup>(\*)</sup>*

**English**

**German**

Understanding		Speaking		Writing	
Listening	Reading	Spoken interaction	Spoken production		
C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user	C2 Proficient user
B1 Independent user	B2 Independent user	B1 Independent user	B1 Independent user	B1 Independent user	B1 Independent user

<sup>(\*)</sup> Common European Framework of Reference (CEF) level

Social skills and competences

**Open minded and engaging**  
– Enjoys working in a multicultural environment (From experience at LAC, ESA/ESTEC and AAU).  
– Thrives in team work situations (Through project based studies at AAU).  
– Seeks leadership when the need arises.

Organisational skills and competences

Technical skills and competences

Computer skills and competences

Additional information

**Structured and goal oriented** as learned through the project oriented teaching at AAU.

- Experience in project and team management (From involvement in student space activities in particular AAUSAT-II).
- Leadership experience (Project supervision for bachelor students, natural leader in student projects.).

**Theoretically strong with practical experience from many projects**

- Wind turbine control; particularly load reducing control and condition monitoring.
- Control theory (hybrid systems in particular) and engineering.
- Modelling and simulation of physical processes.
- Embedded systems software and hardware design and implementation.
- Software systems design and implementation.

**Very proficient developer and user**

- Expert Matlab and Simulink user including code generation with Real-Time Workshop
- Intimate knowledge of flex 5 code base through LACflex aeroelastic code development
- Good knowledge of structured and object oriented programming, e.g. Matlab, Java, C, C++, Delphi.
- Easily learns new programming techniques and languages .
- Experience with a wide range of operating systems, office productivity applications and Internet applications.

### Select Publications

Nevena Perišić, Bo Juul Pedersen, Jacob Deleuran Grunnet, Jesper Runge Kristofersen, and Poul Henning Kirkegaard.

Model-based load estimation for predictive condition monitoring of wind turbines. In *Proc. of EWEA*, 2011

Jacob Deleuran Grunnet, S. M. Soltani, T. Knudsen, M. Kragelund, and T. Bak. Aeolus toolbox for dynamic wind farm model, simulation and control. In *Proceedings of the European Wind Energy Conference*, 2010

Jacob D. Grunnet, Jan D. Bendtsen, and Thomas Bak. Automated fault tolerant control synthesis based on discrete games. In *Proc. of the Conference on Decision and Control*, 2009

Jacob Deleuran Grunnet, Thomas Bak, and Jan Dimon Bendtsen. PAHSCTRL - a control synthesis toolbox for piecewise-affine hybrid systems. In *Proc. of European Control Conference*, 2009

### Personal interests

Rollerskating, Martial Arts (Aikido), Computer Games, Gastronomy.

### References

Name

**Thomas Bak**

Relation

Section Head - Automation and Control, PhD. thesis supervisor.

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Name

**Finn Ankersen**

Relation

Supervisor at ESA/ESTEC.

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Name

**Jens Dalsgaard Nielsen**

Relation

Supervisor AAU student space projects.

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