Curriculum Vitae

Tinne De Laet

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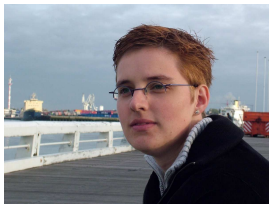
1 Personal information



Surname: De Laet

First name: Tinne

Birth date: 06/08/1982

Birth place: Lier, Belgium

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Belgium

Current work: Aspirant of FWO, personal research grant of the Flemish government.
Research at the Katholieke Universiteit Leuven, Belgium, Department of Mechanical Engineering.

2 Education

- *Master of Science in Mechanical Engineering, Biomedical Engineering*
  Graduated with highest distinction and congratulations of the exam commission.
  Katholieke Universiteit Leuven, Belgium
  2000-2005.
- *Attendant at Second Summer School on Surgical Robotics*
  Montpellier
  August 2005.
- *Attendant at First Winter School on Telesugery*
  Benidorm
  March 2006.
- *Convex optimization course, Lieven Vandenberghe*
  K.U. Leuven
  April - May 2006.

3 Work and Research History

- *Examination and optimization of cooling-installation for testing facilities for gear units*
  Hansen Transmissions Int., Edegem, Belgium
  July 2003.
- *Simulations concerning the unified constraint-based task specification for complex sensor-based robot systems* (see publications)
  Katholieke Universiteit Leuven, Belgium
  August 2004.
- *Start of PhD-thesis as aspirant of FWO: Autonomous manipulation skills based on Bayesian networks*
  Katholieke Universiteit Leuven, Belgium
  October 2005.

4 Languages

- *Dutch:* native language
- *English:* high level (speaking and writing experience)
- *French:* intermediate level

5 Publications

5.1 International Publications

- *Unified Constraint-Based Task Specification for Complex Sensor-Based Robot Systems*; Joris De Schutter, Johan Rutgeerts, Erwin Aertbelien, Friedl De Groote, Tinne De Laet, Tine Lefebvre, Walter Verdonck, Herman Bruyninckx; Dept. of Mechanical Engineering, K.U.Leuven, Belgium; Proceedings IEEE International Conference on Robotics and Automation, Barcelona, 2005.

- *Kinematic Reconstruction of the Lower Limb Based on Measurements of the Body Surface*; Friedl De Groote, Tinne De Laet, Tom De Wilde, Bart Haex, Jos Vander Sloten; Dept. of Mechanical Engineering, K.U.Leuven, Belgium; Proceedings of the 7th national congres on theoretical and applied mechanics, Mons, 2006.

- *Constraint-Based Task Specification and Estimation for Sensor-Based Robot Systems in the Presence of Geometric Uncertainty*; Joris De Schutter, Tinne De Laet, Johan Rutgeerts, Wilm Decré, Ruben Smits, Erwin Aertbeliën, Kasper Claes, Herman Bruyninckx; accepted for publication in International Journal of Robotics Research.

- *Procedures for individualisation and application of a functional four-bar knee model in motion analysis*; Tinne De Laet, Friedl De Groote, Tom De Wilde, Bart Haex en Jos Vander Sloten; Computer Methods in Biomechanics and Biomedical Engineering; submitted to Computer Methods in Biomechanics and Biomedical Engineering.

5.2 Abstracts of readings.

- *Kinematic reconstruction of the Lower Limb Based on Measurements of the Body Surface*; Friedl De Groote, Tinne De Laet, Tom De Wilde, Bart Haex, Jos Vander Sloten; 7th National Congress of the Theoretical and Applied Mechanics, Mons, Belgium, May 29-30, 2006.

- *Gendividualiseerde bewegingsanalyse op basis van metingen van het lichaamsoppervlak*; Friedl De Groote, Tinne De Laet; KVIV Technologisch Instituut, Genootschap Biomedische Techniek en Gezondheidszorg: Studieavond afstudeerwerken Biomedische Ingenieurstechnieken 2005, Aalst, December 2005.

- *Application of Constraint-Based Task Specication and Estimation for Sensor-Based Robot Systems to a Laser Tracing Task* Tinne De Laet, Wilm Decr, Johan Rutgeerts, Herman Bruyninckx, Joris De Schutter; 26th Benelux Meeting on Systems and Control, Lommel, Belgi, 13-15 maart 2007; abstract accepted.

- *Bayesian ltering and smoothing techniques in gait analysis*; Friedl De Groote, Tinne De Laet, Ilse Jonkers, Joris De Schutter; 26th Benelux Meeting on Systems and Control, Lommel, Belgi, 13-15 maart 2007; abstract accepted.

- *Bayesian filtering and smoothing techniques in human motion analysis*; Friedl De Groote, Tinne De Laet, Ilse Jonkers, Joris De Schutter International Society of Biomechanics, XXI Congress, Taipei, Taiwan, July 1-5, 2007; abstract submitted.

6 Master Thesis: Kinematical Reconstruction of the Lower Limb based on Body-Surface Measurements

The purpose of the thesis is to develop a model of the lower limb to support 4D (3D+time) body-surface measurements. The individualization of the model is realized during a calibration measurement. This individualized model has two functions during the measurement. First, the model serves a filter for the measurements and this way it increases the description of the movement. Second, the model is capable of completing the measurements when it doesn't supply sufficient information. The calibration and the use of the model is quasi real-time and the individualized model is capable to give a good description of the lower-limb movement.
Promotor: prof. Jos Vander Sloten, Division of Biomechanics and Engineering Design, KULeuven

7 PhD Thesis: Autonomous manipulation skills based on Bayesian networks

The research project will try to make fundamental contributions to the following aspects of 'intelligent' machines:

- The development of a generic framework of Bayesian networks to generate task and sensor specific world models;
- New algorithms to process sensor information for task specific learning, based on the concept of Bayesian networks;
- Interaction with the environment (active observation and autonomous manipulation), based on the knowledge gathered from the previous topics.

The research will apply these generic and fundamental developments on tasks relating robot-surgery, autonomous manipulation of force and vision controlled machines and movement interpretation by biomechanical sensor systems. More specific, the expected application will be the 'Robot programming by human demonstration'. This is relevant to industrial and biomechanical applications.

Promotor: prof. Herman Bruyninckx, prof. Joris De Schutter, Division of Production Engineering, Machine design and Automation (PMA), KULeuven.

8 Profile

I would describe myself as an enthusiastic and hard worker, with sufficient realism and creativity to have a good contribution to research projects.

9 References

Prof. Joris De Schutter, KULeuven, Division PMA
Prof. Herman Bruyninckx, KULeuven, Division PMA
Prof. Jos Vander Sloten, KULeuven, Division BMGO