






### Experience

- 1. National Cheng Kung University**  
Assistant Professor  
2015-08-01-present  
[www.me.ncku.edu.tw](http://www.me.ncku.edu.tw)  


Principal Investigator and leader of my research group focused on Network inference and Feature selection with applications in Identification of Gene regulatory networks and Biomarker discovery. Responsible for course planning, teaching, and examination of undergraduate and postgraduate students at the Department of Mechanical Engineering.  
Co-supervisor of two PhD students in Bioinformatics and Computational biology at Stockholm University.
- 2. Nordron AB**  
CEO and Founder  
2013-11-28-present  
[www.nordron.com](http://www.nordron.com)  


Business and technical development and management of a data analytics startup addressing primarily problems in Systems Biology and Bioinformatics. Nordron is unleashing the power of data based selection of decision variables, which under mild conditions can be proven correct, as a service for data analysis. The service is based on the only existing theory for feature selection that can account for variation in the uncertainty of each variable. The quality and predictive power of mathematical models in science and business is improved by ensuring that the models account for the right decision variables.  
Supervision of the Master's thesis of 5 students and project work of 9 students.
- 3. Uppsala University**  
Researcher/PostDoc  
2013-01-01-  
2015-09-05  
[www.igp.uu.se](http://www.igp.uu.se)  


Basic and applied research in Bioinformatics, Systems biology, and Cancer biology. Development of methods for network inference. Robust inference of gene regulation and identification of dynamic models of time-series of drug response in patient specific cancer stem cell cultures of Glioblastoma tumours. Analysis of data and development of large-scale computational methods for use in projects utilizing U-CAN (Uppsala-Umeå Comprehensive Cancer Consortium, <http://www.u-can.uu.se>) and UPPMAX (Uppsala Multidisciplinary Center for Advanced Computational Science, <http://www.uppmax.uu.se>) in Prof. Sven Nelander's group. Co-supervisor of two PhD students in Bioinformatics and Computational biology at Stockholm University.
- 4. Jagah Systems AB (Lokkupp)**  
Co-founder  
2014-09-04-  
2015-01-22  
[www.lokkupp.com](http://www.lokkupp.com)  


Business development and management in an indoor geo-location technology startup. Creation of business plans, go-to-market strategies, pitch decks, pitches, and applications for soft-money. Received SEK 2.75M in non-diluting soft-money investments and an investment of EUR 100k from Caixa capital. The later as a part of winning the Smart Cities and Industrial Technologies track of Building Global Innovators—IUL MIT Portugal Caixa Capital Accelerator (<http://mitportugal-ieo.org>).
- 5. KTH Royal Institute of Technology**  
Researcher/PhD student  
2005-09-01-  
2013-06-06  
[www.ee.kth.se](http://www.ee.kth.se)

Basic research in System identification and Systems biology. Development of a theory for robust variable selection and network inference, that decouples the model selection problem from parameter estimation and enables inference of causal regulatory influences among genes from expression data with confidence. Development of an iterative experiment design that ensures informative enough data for both predictive modelling and automated hypothesis testing. Resulted in a PhD thesis titled "Robust inference of gene regulatory networks: System properties,



variable selection, subnetworks, and design of experiments", supervised by Prof. Elling Jacobsen. See <http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-120830>  
Instruction and supervision of undergraduate students in four different Automatic control courses, including development of teaching material, labs, as well as exercise and exam questions. More than 380 hours in class.

6. **Telethon Institute of Genetics and Medicine**

Visiting Researcher  
2007-01-29-  
2007-03-15  
[dibernardo.tigem.it](http://dibernardo.tigem.it)

Theoretical and applied research in Systems biology. Evaluation of the use of sinusoidal inputs, generated by the cell cycle coupling in the IRMA strain of *C. elegans*, for reverse engineering of gene regulatory networks. Analysis of the information content in both in vivo and in silico data. This work was performed in Dr. Diego di Bernardo's lab.

7. **University of Vaasa**

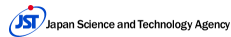
Researcher  
2003-12-01-  
2006-10-31  
[www.uva.fi](http://www.uva.fi)



Applied research in Soft computing and Machine learning, with applications in melanoma diagnostics. Development of classification and calibration methods for supervised learning based on genetic algorithms and adaptive hierarchical clustering. Feature selection for classification of erythema based on near-infrared spectra. This work was performed in Prof. Jarmo Alander's lab.

8. **Japan Science and Technology Agency**

Visiting Researcher  
2002-09-03-  
2003-09-03  
[www.jst.go.jp](http://www.jst.go.jp)



Basic research in Systems biology at ERATO Kitano Symbiotic Systems Project lead by Dr. Hiroaki Kitano. I conducted an exploratory study of large-scale modelling in biology designed to reveal obstacles in modelling, starting from a medically motivated question in molecular cell biology: Is enforced expression of Cdc6, activation of Cdk4/6 and Cdk2 sufficient for anchorage-independent entry of the S phase of the cell cycle? This work resulted in a Master's thesis titled "Issues on modelling of large-scale cellular regulatory networks". See <http://urn.kb.se/resolve?urn=urn:nbn:se:kth:diva-4182>

## Education

1. **Doctor of Philosophy**

Automatic Control  
2013-05-28  
[www.ee.kth.se](http://www.ee.kth.se)



Obtained the degree of Doctor of Philosophy in the subject area of Automatic Control after having completed an educational program of 240 ECTS, including 93 ECTS of courses, and defended my thesis "Robust inference of gene regulatory networks: System properties, variable selection, subnetworks, and design of experiments" supervised by Prof. Elling Jacobsen. In it four issues related to inference of gene regulatory networks are addressed. Observed properties of published data are explained by introduction of a new system property, which also explains why it typically is difficult to determine influences among genes. Necessary conditions on biological experiments for inference are derived. A principle for how to design these experiments such that the data becomes informative enough is proposed. A new theory and method for inference of existing causal influences among genes from data with statistical significance is developed and demonstrated through determination of an unknown influence between two genes in yeast.

2. **Master of Science**

Engineering Physics  
2005-08-29  
[www.kth.se](http://www.kth.se)



Completed the Degree Programme in Engineering Physics, 180 credits (270 ECTS), with a weighted average grade of 4.45 (with five being the highest grade). This included one year of Physics studies as an exchange student at the University of Tokyo. I did my Master's Project in Biomedical Engineering, titled "Issues on modelling of large-scale cellular regulatory networks" under the supervision of Dr. Hiroaki Kitano, while working as a Visiting Researcher at the ERATO Kitano Symbiotic System Project in Tokyo.

### Selected publications

The complete list: <http://www.mendeley.com/profiles/torbjorn-nordling/>

1. I have h-index 8, i10-index 7 (Google Scholar 2015-03-31) **Nordling, T. E. M.**, Tjärnberg, A., Studham, M., Nelander, S., & Sonnhammer, E. L. (2015). Avoiding pitfalls in L1-regularised inference of gene networks. *Molecular BioSystems*, 11(1), 287–296. doi:10.1039/C4MB00419A
2. 46 citations (Google Scholar 2015-03-31) Jörnsten, R., Abenius, T., Kling, T., Schmidt, L., Johansson, E., **Nordling, T. E. M.**, Nordlander, B., et al. (2011). Network modeling of the transcriptional effects of copy number aberrations in glioblastoma. *Molecular systems biology*, 7(1), 486. doi:10.1038/msb.2011.17
3. 15 citations (Google Scholar 2015-03-31) **Nordling, T. E. M.**, & Jacobsen, E. W. (2009). Interampattiness--a generic property of biochemical networks. *IET Syst Biol*, 3(5), 388–403. doi:10.1049/iet-syb.2009.0008
4. 33 citations (Google Scholar 2015-03-31) Koljonen, J., **Nordling, T. E. M.**, & Alander, J. (2008). A review of genetic algorithms in near infrared spectroscopy and chemometrics: past and future. *Journal of Near Infrared Spectroscopy*, 16(3), 189. doi:10.1255/jnirs.778
5. 11 citations (Google Scholar 2015-03-31) **Nordling, T. E. M.**, Hiroi, N., Funahashi, A., & Kitano, H. (2007). Deduction of intracellular sub-systems from a topological description of the network. *Molecular BioSystems*, 3(8), 523–9. doi:10.1039/b702142a

### Commissions of trust

1. **Board member** **The board of the School of Electrical Engineering** at KTH Royal Institute of Technology, board member (PhD student representative) 2007 and 2008.
2. **Chair** **The PhD Council at the School of Electrical Engineering** at KTH Royal Institute of Technology, chair 2007 and 2008. Coverage of study rights of PhD student.
3. **President** **Svensk Ungdom i Lovisanejden r.f.**, President of the committee for the work period 1998-99, deputy member of the committee 1999-00. Regional youth organization of the Swedish People's Party of Finland. Created SU i Lovisanejden by merging 5 associations that had been inactive for more than ten years.
4. **Board member** **Svensk Ungdom - Svenska folkpartiets ungdomsorganisation r.f.**, permanent member of the committee 1998 and 1999, member of the financial board 1999. Central youth organization of the Swedish People's Party of Finland.
5. **Vice President** **Lovisa Gymnasium**, Vice President of the student union for the school year 1996-97, member of the committee for the school years 1995-96 and 1997-98, permanent representative in the school board for the school year 1996-97.

### Languages

1. **Swedish** Mother tongue. Laudatur (highest grade) in the matriculation exam.
2. **English** Academic reading and writing, and fluent speech. Eximia cum laude approbatur (2<sup>nd</sup> highest grade) in the matriculation exam.
3. **Finnish** Fluent. Finnish governments certificate for good knowledge in Finnish 1998.
4. **Japanese** Everyday speech, reading and writing of Hiragana and Katakana, but few Kanji.
5. **German** Everyday speech, basic reading and writing.
6. **Chinese** Elementary introductions, some simplified characters.