Curriculum vitae

Name	-	Lahti, Leo M.
Birth date and place	-	2nd July, 1979 in Turku, Finland
Nationality	-	Finnish
Research homepage	-	http://www.iki.fi/Leo.Lahti
Researcher identifier	-	ORCID 0000-0001-5537-637X
Language Skills	-	Finnish (mother tongue); English (fluent); Swedish (good)

Degrees

Doctor of Science in Technology (Tekniikan tohtori), Aalto University, Information and Computer Science, 12/2010. Machine learning and bioinformatics. Thesis: Pass; Courses: Pass with distinction.

Master of Science in Technology (Diplomi-insinööri), Helsinki University of Technology, Engineering Physics and Mathematics, 12/2003. Major: mathematics; minor: information technology. Grade: Very good.

Bachelor of Science in Political Sciences (Valtiotieteiden kandidaatti), University of Helsinki, Faculty of Political Sciences 7/2008. Practical philosophy; minors: Economics, Communication. Thesis: Excellent.

Adjunct Professorships / Title of Docent

Applied Mathematics, University of Turku, 9/2015

Current position

9/2016- University of Turku, Mathematics & Statistics. PI / Academy of Finland Research Fellow 2016-2021
4/2017- Blueprint Genetics co. Scientific advisor in Machine Learning & AI

Previous positions (for the gaps, see international experience)

9/2012-8/2015 (3 years) Postdoc. Academy of Finland. Veterinary Biosciences, University of Helsinki

3-12/2011 (9 months) Postdoc. Veterinary Biosciences, University of Helsinki, Finland. TEKES FiDiPro project and Microbial Food Safety Research Center of Excellence

1/2006-2/2011 (5 years) Researcher. Information and Computer science, Aalto University, Finland. Adaptive Informatics Research Center of Excellence, Helsinki Institute for Information Technology HIIT

9-12/2005 (4 months) Researcher. University of Helsinki, Finland. Dpt. Computer Science

9/2004-8/2005 (1 year) Researcher. Turku Center for Biotechnology, Finland (Civil service)

1/2003-6/2004 (1.5 years) Research assistant. Computer and Information Science, Helsinki University of Technology, Finland. Neural Networks Research Center of Excellence

6-8/2000 (3 months) Programmer. Teleste co.

International experience

12/2015-8/2018 (>2.5 years) Leuven, Belgium. Raes Lab (human microbiome). Visiting scholar (full time).

1/2012-8/2015 (3.5 years) Wageningen, The Netherlands. Lab. of Microbiology. Visiting scholar (full time).

11/2010-1/2011 (3 months) European Bioinformatics Institute EBI, UK. Visiting scholar.

6/2001-8/2001 (3 months) CERN, Geneva, Switzerland. Research trainee.

7/2002 (1.5 months) Croatian Meteorological Institute, Zagreb, Croatia. Summer trainee.

9-10/2000 (2 months) Dakshinayan, Bihar, India. English teacher.

Acknowledgments and awards

2019 Best paper award. Hill MJ *et al.* Digital Humanities in the Nordics conference.

2017 Open Science award. Ministry of Education and Culture, Open Science & Research Initiative. For Open Knowledge Finland Open Science work group. Founding member, first coordinator, active contributor.

2016 Open Science award. Open Science & Research Initiative, Ministry of Education and Culture. For our digital humanities research team with Prof Mikko Tolonen in University of Helsinki.

2015 1) Nature Communications paper in NCI's Epidemiology and Genomics Research Highlights; 2) PeerJ publication to PeerJ top-10 microbiology collection

2014 1) Apps4Finland award data visualization; 2) Datademo awards by Helsinki Region Infoshare and Sitra

2013 1) Apps4Finland award; 2) Waterloo Institute for Complexity and Innovation Data Challenge

2012 Apps4Finland awards (3) for open parliamentary monitoring infrastructures

2011 1) Int'l Dupuytren Award for *Modern Pathol.* paper*; 2)* Apps4Finland award open data analytics

2005-2010 ComBi graduate school associate member

2005 Best poster; Seminar of Systems Biology Research Program. Academy of Finland, Helsinki

2001 Professor E.J. Nyström stipend on excellence in mathematical studies (1000e)

Research funding Total personal funding >1.3Me; total funding as a team member ~1.3Me. From Academy of Finland, foundations, and universities' competitive funds.

Major personal grants

Academy of Finland Research Fellow 9/2016-8/2021 (853850e) University of Turku, Finland. Ecological modeling of the gut microbiome: individuality, dynamics, and function in large populations.

Academy of Finland Postdoctoral Fellow 9/2012-8/2015 (378657e). University of Helsinki, Finland. Meta-analysis of human gut microbiome data collections.

Kordelin Postdoc grant 2012 (35 000e). Characterization of the human intestinal ecosystem by computational integration of large-scale phylotype profiling data.

ICS Postgraduate scholarship (~80 000e). Department of Information and Computer Science, Aalto University, Espoo, Finland, 2006-10 (1850e/month).

Travel grants (2000-2014; >3700e): COST visit Glasgow University (3/2014); Open Legislative Data Conf. (Paris 7/2012); Human Microbiome Congress (Paris 3/2012); ComBi Grad School: ICSB08 (Gothenburg), ECCB08 (Sardinia); TKK student union exchange (India 9-10/2000).

Major contributions as a research team or consortium member (>1,325,000e)

10/2018 Business Finland H2020 preparation grant. 20 000e (jointly with Dr. Teemu Niiranen)

9/2018-8/2022 Academy of Finland; health analytics (450000e; partner). *Modelling systemic cross-talk between brain, gut, and peripheral tissues in glucose homeostasis: exercise training and public health (CROSSYS* / PI Jarna Hannukainen*).*

1/2016-12/2019 Academy of Finland consortium on digital humanities (833258e; research coordinator). University of Helsinki, University of Turku and National Library of Finland: *Computational History and the Transformation of Public Discourse in Finland 1640–1910 (COMHIS)*. I designed and wrote the open data science components of the application, and participate actively in the project coordination in Helsinki in this consortium led by Prof. Hannu Salmi, University of Turku.

2015 University of Helsinki digital humanities grant (30 000e) *Research of the Finnish national bibliography by digital means.* With M. Tolonen, K. Sinnemäki and K. Linden.

2012-2013 Sitra New Democracy grant (12000e) Election analytics citizen science project with Kansan muisti ry. Major role in project design; steering group member.

Research leadership and supervision

Principal Investigator 2 personal grants funded by Academy of Finland.

Coordinator in 1 TEKES consortium (MultiBio 2008-2011; steering group member and coordinator; between Aalto University, University of Helsinki, European Bioinformatics Institute EBI, and five life science companies), 1 Academy of Finland consortium (COMHIS 2016-2019).

Training Formal pedagogical courses for university teachers by University of Turku 2-3/2018: *Becoming a teacher (1cr)*, *How to develop teaching (1cr)*, and *Lecturing and expertise (1cr)*. EMBO Research Leadership Course (4 days; Heidelberg 11/2017). VIB Leadership Program (4 days; Ghent 1-2/2017); VIB Oral Presentation Course (3 days; 1-2/2017); VIB Research Ethics Course (1 day; 3/2017); VIB Convincing, Debating, and Negotiating Course (2 days; 5/2017).

Supervision Ongoing: primary supervisor for 2 PhD students, co-supervisor/instructor for 4 PhD students. Instructor for completed theses: 2 PhDs (co-promotor; both with distinction), 7 MSc, 2 BSc theses; all graduated successfully and are employed in multiple countries (Finland, Belgium, The Netherlands, UK, Portugal); 3 MSc students have continued to PhD studies.

Course teaching 2 international summer schools on statistical ecology and bioinformatics (Leuven 9/2017 & Wageningen 5/2018; 2 x 3 days; organizer); 1 intensive course in microbial bioinformatics (Wageningen 2015); >10 invited academic lectures and workshops in Finland and abroad. Assistant in 4 high-throughput bioinformatics courses 2006-2009.

Curriculum design Work group designing Digital Humanities MSc module, Univ. of Helsinki (2015)

Thesis examination committee member KU Leuven, Belgium (MSc 6/2017 & 8/2018)

Industry Collaboration

Blueprint Genetics Scientific advisor (Machine Learning & Artificial Intelligence). This genetic testing company founded in 2012 has now ~150 employees and I was invited as an external scientific advisor in 2017. The company was selected as "one of the hottest startups in Europe" by the Wired journal in 7/2018. Oxford Research. Joint reports on open science. Demos Helsinki. Joint Apps4Finland award on open data analytics. MultiBio consortium Coordinator and steering group member of a three-year 988,000e TEKES consortium (MultiBio), including 4 research groups (from Aalto University, University of Helsinki and European Bioinformatics Institute EBI) and 5 life science companies. The companies contributed to the project funding and participated the steering group with bi-annual seminar meetings. Helsinki Region Infoshare. Collaboration 2012-2013, developing tools for Sotkanet database of the National Institute for Health and Well-being (THL). Helsingin Sanomat Open Election Data Hackathon 2012: collection of Finnish election data for the event.

Other academic merits

Societies Open Knowledge Finland ry. Open Science Work Group. Founder & coordinator 2013-15. Board member Finnish Society for Bioinformatics: PR 2008-9; Vice president 2009-10; Treasurer 2002 in Mathematics student union, Helsinki University of Technology;

Member of organizing committee Computational Life Science annual seminar. University of Turku 2018. Philosophy and History of Open Science (PHOS) 2016 - International conference with 100+ registered participants, 15 invited (mostly international) speakers in University of Helsinki; Finnish Bioinformatics Days 2008-2010 (3 years).

Member of program committee Digital Humanities in the Nordics (DH2018). International conference, University of Helsinki (Open Science chair); European Conference on Machine Learning & Principles and Practice of Knowledge Discovery (ECML-PKDD 2017-2018); Neural Information Processing Systems (NeurIPS; 2019).

Expert positions Digital humanities advisory panel (National Library of Finland) 2019-2020. Indian microbiome project advisor (2018-2019). University of Turku open science methods policy (OpenUTU work group 2017-); Mikkeli Research Centre for Digital Information Digitalia steering group 2015-2017.

Editorial board Frontiers in microbiology. Review editor. Most cited Microbiology journal (JCR & CiteScore). Versus journal (in Finnish) by environmental/geographical research societies in Finland, focusing on science popularization and supporting open non-commercial academic publishing. www.versuslehti.fi

Reviewer >30 scientific journals and conferences (e.g. Nat. Communications; PLoS); for postdoc positions (2017 digital humanities; University of Helsinki); grant applications (Poland National science center 2017)

Outreach 100+ academic presentations in 15+ countries, including 1 keynote, 40+ invited and 35+ contributed academic talks; 20+ public workshops, video lectures or interviews; 20+ poster presentations. Co-authored blogs have >50,000 hits. Co-organized several academic workshops. Recent examples of talks include include 2/2019 Open Data Science, Turku Love Data week; 11/2018 Datatieteen mahdollisuudet, KELA/Helsinki; 12/2018 Roadmap for microbiome bioinformatics, European Bioconductor meeting; 11/2018 Population studies of the human microbiome. ICMR'18. Pune, India; 10/2018 Open data science, Intelligent Data Analysis conference, The Netherlands; 9/2018 Dynamic landscape of the human gut microbiome: a population-level view. EMBL Human Microbiome Conference, Heidelberg.

Publications 50+ peer-reviewed scientific publications including book chapters, and papers in journals such as Nature Communications, Nature Methods, and ISME Journal. Other research outputs include software, data, workshop papers, and outreach material. Scopus h-index 19; ~1800 citations, average 50+ citations per article in Scopus. Theory and applications of high-throughput data integration and analysis, computational biomedicine and digital humanities, blending approaches from statistical machine learning, AI, and numerical ecology.

Research software 10+ mature scientific software projects in machine learning, bioinformatics, numerical ecology, and digital humanities with altogether ~100k downloads/year.

Research data Maintainer of 3 published scientific data collections.

Scientific and societal impact Research covered by Guardian, Forbes, Le Figaro, New York Times, Huffington Post, Science Daily, Tiede, Turun Sanomat, Tietoviikko, and science blogs. My publications are among top-1% online shares, and top-2% most highly cited in Wikipedia (ImpactStory altmetrics), and the software among top-4% impact (Depsy) and top-20% in Bioconductor. Founding member and chair 2013-2015 Open Knowledge Finland Open Science work group. My Freedom of Information request supported by the administrative court led to release of academic journal price information by Ministry of Education and Culture in 2016: Finland subsequently released comprehensive time series of academic publishing subscription price development as open data and became a leading country in the transparency of academic journal pricing; After this I have participated in designing the tiedonhinta.fi campaign, signed up by >2700 researchers to support Finnish negotiations with academic publishers; the Finnish Ministry of Education and Culture awarded our Open Knowledge Finland team for these activities with Open Science award in 2017. Data Elections Finland (Datavaalit) Steering group member. Network for sustainable parliamentary monitoring infrastructure in Finland. Funded by Sitra (2012-13) and national media companies.

Networks 150 co-authors from 10+ countries. Current key collaborators in Finland include Prof Willem M de Vos (University of Helsinki, Medical Faculty, Director of Human Microbiome Research Program), Prof Veikko Salomaa (THL), Dr Eveliina Munukka (Director of Turku Microbiome Biobank), Prof Mikko Tolonen (University of Helsinki), and internationally Prof Rob Knight (San Diego), Prof Karoline Faust (KU Leuven), and Prof Marten Scheffer (Wageningen). 2 COST networks in bioinformatics; Founder and main developer rOpenGov open source network for digital humanities, with contributors from >5 countries.