helga ingimundardóttir

computational engineer

contact

Helga Ingimundard.
Kogunarhaed 1
Gardabaer IS-210
Iceland

☐ (+354) 865 1341

✉ helga85@gmail.com
🖥 www.hi.is/∼hei2
🐦 tungufoss
⌗ tungufoss
in helgaingimundardottir

languages

Icelandic mother tongue
English fluency
French & Danish
conversational

programming

all-purpose: C#, C++
numerical: MATLAB
parallel: MPI
statistical: R
sql: Microsoft SQL Server
linear: GLPK/MathProg,
Gurobi

education

2009–2016	Ph.D. of Computational Engineering	The University of Iceland, Reykjavik

Worked on a doctorate on hyperheuristcs under the guidance of Prof. Tomas Philip Runarsson. The main focus of the study is on Job Shop Scheduling Problems (JSP) and Flow Shop Problems (FSP) and how to automate the scheduling process using e.g. ordinal regression. Moreover I'm inspected problem difficulty and algorithm's footprints.
courses in Ph.D. programme: ethics of science and research, communication skills for doctoral students, leadership skills for doctoral students, research plans and applications writing, theoretical statistics, high performance computing A and B
thesis: entitled *ALICE: Analysis & Learning Iterative Consecutive Executions* is available at `http://hdl.handle.net/1946/25337`.

2010–2012	Graduate Diploma of School of Education	The University of Iceland, Reykjavik

Teaching Studies for Higher Education.

2008–2010	Masters of Computational Engineering	The University of Iceland, Reykjavik

Detection of Fouling : Effectiveness Ratio Method
The dissertation investigated the possibility of using models to detect fouling in a cross-flow heat exchangers, by only using measurements that are attainable in normal operation of the heat exchanger. The on-line detection of fouling is used by a new and more general method that also takes into account that the input can be varying.
The new method finds a threshold for fouling based on the estimate of the steady states of the effectiveness, which is done by applying a wavelet transform since the transform is localised in both time and frequency.
The parameters of the method need to be chosen carefully, e.g. compromise between the frequency and time localisation, thus a multiple objective genetic algorithm is implemented for the optimisation.

2005–2008	Bachelor of Mathematics	The University of Iceland, Reykjavik

Specialization in Computer Science

work experience

2015–Present	AGR Dynamics	Reykjavik, Iceland

SQL Consultant for AGR 5
AGR 5 is a fully web based solution for supply chain management. AGR 5 helps users to visualise sales history and makes order proposals using statistical forecasting. My role for AGR 5 is on the back-end, with data implementation and database maintenance.

2015–Present	RANNIS	Reykjavik, Iceland

Advisor in Technology Development Fund

I was on the advisory board that reviews grant applications submitted to the Technology Development Fund at The Icelandic Centre for Research (RANNIS). The role of the fund is to support R&D in the field of technological development aimed at innovation in the Icelandic economy. Donations in the Technology Development Fund 2004–2014 were a total 8,580 million ISK, thereof 1,372.5 million ISK for 2015.

2013–2015	VALKA	Kopavogur, Iceland

Computational Engineer in Research and Development

Full time researcher at Valka, which specializes in the development and marketing of equipment and automation solutions for the fish processing industry. Valka was the recipient of the Icelandic Innovation Award 2013.

Detailed achievements:

- Designed and implemented an intelligent fish portioning algorithm, based on fillet's X-Ray imagery.
- Generalised their fish bone detection algorithm in order to analyse more species. Fast calculations, yet sufficiently accurate, for real-world processing plants.
- Collaborator on three dimensional visualisation of fish bones, based on stereovision.
- Conducted and prepared reports for efficiency tests.

2007–2009	LANDSBANKINN	Reykjavik, Iceland

Summer Intern at Testing Department

Worked on making automated tests in Quick Time Professional for personal on-line banking.

Summer Intern at Quantitative Research and Trading Support for the FX and Derivatives Sales

Worked on estimating the behaviour of the EUR/ISK currency cross using Support Vector Machines.

Summer Intern at Business Support

Worked on Level 1 technical support. It entailed setting up software and providing elementary technical assistance to the employees of Landsbankinn via phone or remotely accessing their computers.

academic experience

2011–2012	University of Iceland, Industrial Engineering Department	Reykjavik Iceland

Associate Lecturer (i. stundakennari) in Operations Research

Responsible for the under graduate course Operations Research (IDN401G), spring semesters 2011 and 2012.

During that period, I restructured the course under the guidance of Gudrun Geirsdottir at School of Education. Moreover, as a result of my efforts in innovating the course design, assessment and evaluations of tutorials, I inspired a fellow teacher in Natural Sciences, and we were awarded a teaching grant for the University for developing our methods further.

2007–2010	University of Iceland, Industrial Engineering Department	Reykjavik Iceland

Assistant Teacher (i. dæmatímakennari), School of Engineering and Natural Sciences
Worked as a tutor during tutorials, correcting and working through handouts for the following under graduate courses:

- Linear Algebra — Autumn 2007
- Simulations — Spring 2008
- Operational Research — Spring 2008
- Calculus IB — Autumn 2009
- Numerical Analysis — Spring 2010

communication skills

2016 Oral Presentation PhD defence 30th of June at Háskóla Íslands, Reykjavík, Iceland.
Presented my PhD thesis *ALICE: Analysis & Learning Iterative Consecutive Executions*.
Opponents: Prof. Edmund Burke and Prof. Kate Smith-Miles.

2015 Oral Presentation 9th Int'l Conference on Learning and Intelligent Optimization (LION9)
Presented the paper *Generating Training Data for Supervised Learning Linear Composite Dispatch Rules for Scheduling*, Lille, France.

2012 Oral Presentation 6th Int'l Conference on Learning and Intelligent Optimization (LION6)
Presented the paper *Determining the Characteristic of Difficult Job Shop Scheduling Instances for a Heuristic Solution Method*, Paris, France.

2011 Oral Presentation 11th Int'l Conference on Intelligent Systems Design and Applications (ISDA)
Presented the paper *Sampling Strategies in Ordinal Regression for Surrogate Assisted Evolutionary Optimization*, Cordoba, Spain.

2010 Oral Presentation 5th Int'l Conference on Learning and Intelligent Optimization (LION5)
Presented the paper *Supervised Learning Linear Priority Dispatch Rules for Job-Shop Scheduling*, Rome, Italy

2010 Invited speaker Silisian University, Gliwice, Poland
In collaboration with Prof. Waldemar Grzechca at the Silisian University, I was invited to present my Ph.D. research to their faculty.

2009 Poster 11th Int'l Conference on Heat Exchanger Fouling and Cleaning
Presented the paper *Detection of Fouling in a Cross-Flow Heat Exchanger Using Wavelets*, Schladming, Austria.

2009 Presentation University of Valenciennes and Hainaut-Cambresis, Valenciennes, France
As part of the collaboration with Sylvan Lalot (my M.Sc. co-advisor), I presented the research for my Masters degree in Computational Engineering for faculty at the ENSIAME department at UVHC.

grants

2012	Grant for Teaching Development	University of Iceland, Kennslumálasjóður

Grant for implementing a new teaching method for tutorials in Engineering and Natural Sciences. Collaboration between Engineering faculty and Natural Sciences faculty.

2009-2012	Postgraduate Scholarship	University of Iceland Research Fund

Three year stipend for doctoral studies.

2010	Mobility grant	Fundusz Stypendialny i Szkoleniowy (FSS)

Mobility grant to visit Silisian University, Gliwice, Poland.

2009	Postgraduate Scholarship	French Embassy

Awarded to Icelandic students pursuing a Masters degree.

awards

2015	Nominated for Best Paper award	9th Int'l Conference on Learning and Intelligent Optimization

I had one of three full-paper submission nominated for Best Paper award, on my paper *Evolutionary Learning of Weighted Linear Composite Dispatching Rules for Scheduling*.

2005	Magna cum laude	The Commercial College of Iceland, Reykjavik, Iceland

Awarded for being the top third student in my final year of a Baccalaureate degree.

extracurricular activity

2016-Now	Treasurer of AGR Dynamics' Company Union	Company union at AGR Dynamics
2014-2015	Treasurer of SALKA	Company union at Valka ehf.
2011-2012	Graduate student representative	Science Committee in Engineering and Natural Sciences
2009-2011	Treasurer of HERON	Student union for postgraduates in Engineering and Natural Sciences
2011-2012	Graduate student representative	Science Committee in Engineering and Natural Sciences
2009-2010	Treasurer of BEST Reykjavik	Reykjavik division for Board of European Students of Technology

Participated in the BEST General Assembly 2009 in Budapest, Hungary, on behalf of BEST Reykjavik.

Helped organize two BEST academic courses on technology at the University of Iceland, where we housed and entertained roughly 20 European students in engineering over a course of a week.

2006-2007	President of STIGULL	Student union for undergraduates in Mathematics and Physics

interests

professional: heuristics, artificial intelligence, evolutionary computation, global optimisation, statistical learning, machine learning, real world applications

personal: knitting, sewing, general arts and crafts, occasional French lessons, internet cats

publications

Literature available on **Research Gate**

article in peer-reviewed journals

Detection of Fouling in a Cross-Flow Heat Exchanger Using Wavelets

Helga Ingimundardottir, Sylvain Lalot

Heat Transfer Engineering 32.3-4 (2011) pp. 349–357. 2011

thesis

ALICE: Analysis & Learning Iterative Consecutive Executions

Helga Ingimundardottir

PhD thesis, University of Iceland, 2016, Reykjavik, Iceland

Detection of Fouling: Effectiveness Ratio Method

Helga Ingimundardottir

Master's thesis, University of Iceland, 2011, Reykjavik, Iceland

international peer-reviewed conferences/proceedings

Generating Training Data for Supervised Learning Linear Composite Dispatch Rules for Scheduling

Helga Ingimundardottir, Thomas Philip Runarsson

9th International Conference on Learning and Intelligent Optimization (LION'09), 2015

Evolutionary Learning of Weighted Linear Composite Dispatching Rules for Scheduling

Helga Ingimundardottir, Thomas Philip Runarsson

International Conference on Evolutionary Computation Theory and Applications (ECTA), 2014

Determining the Characteristic of Difficult Job Shop Scheduling Instances for a Heuristic Solution Method

Helga Ingimundardottir, Thomas Philip Runarsson

Learning and Intelligent Optimization (LION6), 2012, Paris, France

Supervised Learning Linear Priority Dispatch Rules for Job-Shop Scheduling

Helga Ingimundardottir, Thomas Runarsson

Learning and Intelligent Optimization (LION5), 2011, Rome, Italy

Sampling Strategies in Ordinal Regression for Surrogate Assisted Evolutionary Optimization

Helga Ingimundardottir, Thomas Philip Runarsson

Intelligent Systems Design and Applications (ISDA), 11th International Conference on, 2011, Cordoba, Spain

Detection of Fouling in a Cross-Flow Heat Exchanger Using Wavelets

Helga Ingimundardottir, Sylvain Lalot

International Conference of Heat Exchanger Fouling and Cleaning VIII, 2009, Schladming, Austria

seminars

Supervising Learning Linear Composite Dispatch Rules for Scheduling

Helga Ingimundardottir

ReiDok13 Symposium on Computational PhD Projects, 22. April Apr., 2013

Creating Meaningful Training Data for Difficult JSSP Instances for Ordinal Regression

Helga Ingimundardottir

Seminar for Ph.D. students, 28. March Mar., 2012

Determining the Characteristic of Difficult JSSP Instances for a Heuristic Solution Methods

Helga Ingimundardottir

Stats colloquium, 16. February Feb., 2012

Generating Training Data for Learning Linear Composite Dispatching Rules for Scheduling

Helga Ingimundardottir

ReiDok12 Symposium on Computational PhD Projects, 3. December Dec., 2012

Supervised Learning Linear Priority Dispatch Rules for Job-Shop Scheduling

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