

CURRICULUM VITAE

BALDVIN EINARSSON

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Education:

- 2011 Ph.D. in Mathematics, University of Iceland. *Advisors: Professor Björn Birnir of UC Santa Barbara and Professor Sven Sigurdsson of University of Iceland.* (See thesis below)
- 2007 Teaching Diploma for junior college level mathematics (ages 16-20) in Iceland, University of Iceland.
- 2005 B.S. in Mathematics, University of Iceland. *Majored in Mathematics and a minor in Numerical Analysis.*
- 2001 Junior College Diploma (matriculation exam), Reykjavik Junior College. *Majored in Mathematics and Physics.*

Professional experience:

January 2014 – Present: Core QA Analyst II at AIR-Worldwide. *Interacted with research, software, and product management teams in order to write various test plans to ensure the correctness and quality of the catastrophe models and software. Handled large amounts of data with various languages, including R and SQL.*

August 2011 – December 2013: Specialist at the Marine Research Institute of Iceland. *Joined a project making the MRI's data available online. I learned ESRI GIS software and R in order to create new layer data files and publish them as map services (viewable online at SeaSketch.org, project "Icelandic MRI").*

August 2011 – July 2013: Postdoc at the Center for Complex and Nonlinear Science at UC Santa Barbara.

August 2011 – Present: Member of ACM.

July 2011 – Present: Member of SIAM.

October 1 2010 - May 30 2011: Researcher. *Collaborated with Professor Ana Carpio at Universidad Complutense de Madrid, Spain. I worked on developing and programming a cellular automata model for biofilm growth (see publications below). Programming done in Fortran.*

2006 -2009: Junior Researcher, University of California, Santa Barbara, USA. *Took graduate courses and did research.*

Grants and awards:

Awarded the UCM-EEA Abel Grant to work with Professor Ana Carpio at Universidad Complutense de Madrid, Spain.

October 1 2010 - March 30 2011. I extended the stay through May 30 2011.

Received a doctoral thesis grant of 2,6 million ISK (about \$22,000) from the University of Iceland Research Fund. 2009.

Received the *Freymóðsson-Danley Prize* for outstanding academic performance at the University of California, Santa Barbara. June 12, 2006.

Publications:

Einarsson, B., Birnir, B., Bonilla, L. *Ordered, Disordered and Partially Synchronized Schools of Fish.* (Submitted)

Einarsson, B., Rodriguez, D., Carpio, A. *Pattern formation in biofilms at increasing Reynolds numbers.* (Submitted)

Rodriguez, D., Einarsson, B., Carpio, A. *Biofilm growth on rugose surfaces.* 2012. *Physical Review E*, 86: 061914

Einarsson, Baldvin *An Interacting Particle Model and Dynamic Energy Budget Theory: Analysis and Applications.* 2011. Ph.D. Thesis at the University of Iceland. Available online at <http://www.math.ucsb.edu/~baldvine>

Einarsson, B., Birnir, B., and Sigurðsson, S. *A Dynamic Energy Budget (DEB) model for the energy usage and reproduction of the Icelandic capelin (Mallotus villosus).* 2011. *Journal of Theoretical Biology*, 281: 1-8.

Barbaro, A., Einarsson, B., Birnir, B., Sigurðsson, S., Valdimarsson, H., Pálsson, Ó.K., Sveinbjörnsson, S., and Sigurðsson, Þ. 2009. *Modelling and simulations of the migration of pelagic fish.* *ICES Journal of Marine Science*, 66: 826-838.

Kjartan G. Magnusson, Sven Þ. Sigurdsson and Baldvin Einarsson, 2004. *A discrete and stochastic simulation model for migration of fish with application to capelin in the seas around Iceland.* Science Institute, University of Iceland, Report RH-20-2004. Available online at <http://www.math.ucsb.edu/~baldvine>

Academic service:

Refereed manuscripts for *Applied Mathematical Modelling* and *The American Naturalist*.

Talks at international conferences:

Synchronization of Schools of Fish. "AMS Special Session on Mathematic and Social Interactions" at the Joint Mathematics Meetings, San Diego, USA, January 9, 2012.

Noise Driven Solutions of Schooling Fish and a A Cellular Automata Model for Biofilm Growth with Surface Flow. Banff International Research Station (BIRS) 5 day workshop 12w5041 "Emergent behaviour in multi-particle systems with non-local interactions". Banff, Canada, January 23, 2012.

A Cellular Automata Model for Biofilm Growth with Surface Flow. "AMS Session on Mathematical Biology and Related Fields, III" at the Joint Mathematics Meetings, Boston, USA, January 6, 2012.

*Analysis of an interacting particle model with applications to capelin (*Mallotus villosus*)*. "Recent Developments in Self-organized Dynamics" at SIAM's Conference on Partial Difference Equations. San Diego, USA, November 14, 2011.

A model for migrating capelin and effect of temperature. "Fluctuation Phenomena", Barcelona, Spain, April 27, 2011.

Models of Migrations of Prey Fish (capelin, herring, blue whiting, mackerel, etc.). Conference on the subject of my Ph.D. thesis. Reykjavik, Iceland, April 17, 2011.

Integrating a dynamic energy budget model into a capelin migration model. ESSAS Annual Science Meeting. Reykjavik, Iceland, August 31, 2010.

Simulations and scaling laws for a bioenergetic model of the Icelandic capelin stock. ICES Annual Science Conference, Theme session H: "What do fish learn in schools?" Berlin, Germany, September 21, 2009.

Teaching experience:

Fall semester 2013, Bridgewater State University. Taught "Math 110: Elementary Statistics I," "Math 144: Applied Calculus for Business," and "Math 095: Precalculus Readiness."

Spring quarter 2013, UC Santa Barbara, Lecturer. Taught "Math 8: Transition to higher mathematics" and two sections of "Math 34A: Calculus for Social and Life Sciences."

Winter quarter 2013, UC Santa Barbara, Lecturer. Taught "Math 3B: Calculus with applications" and "Math 34A: Calculus for Social and Life Sciences."

UC Santa Barbara, Teacher, Winter quarter 2012. Taught "Math 3C: Differential Equations and Linear Algebra."

Reykjavik Junior College, Teacher, 2006-2007. Taught mathematics to two classes of 25 and 15 lower division college students while taking pedagogy classes for my 2007 teaching credentials.

University of Iceland, Teaching Assistant. Taught recitation sections for engineering students in the following courses:

- Fall 2005: *Mathematical Analysis IIIB, under the supervision of Professor Jón Ingólfur Magnússon.*
- Fall 2004: *Mathematical Analysis IB, under the supervision of Professor Robert Jonathan Magnus.*
- Spring 2004: *Mathematical Analysis IIB, under the supervision of Professor Jón Ingólfur Magnússon.*
- Fall 2003: *Linear Algebra and Geometry, under the supervision of Professor Rögnvaldur G. Möller.*

Reykjavik Junior College, Teacher, 2002-2003. Taught mathematics to three classes of 25 lower division college students.

Programming skills:

I am a proficient programmer with extensive experience. I have advanced knowledge of the following languages:

- SQL** Extensive professional use at my current work.
- FORTRAN** My preferred programming language. Have coded models for fish migrations and biofilm growth.
- C++** The current language I am using for the models of fish migrations.
- MATLAB** Have extensive knowledge of the program.
- R** I currently use R to handle data, and analyse data through database connections.

Additionally, I know my way around MACs and Linux computers, and I also have experience with **AWK** and **MYSQL**. I have taken an introductory level course on **JAVA**. My personal website exposed me to **HTML**, **CSS**, **JAVASCRIPT** and **XML**.

Language skills:

- Icelandic Native, first language.
- Swedish Native. I lived in Sweden between 5 and 9 years old. Can communicate with Danes and Norwegians.
- English. Fluent, near native.
- Spanish Conversational.
- French Conversational. I took four years of French in junior college.

Conference papers and other publications:

Rodriguez, D., Einarsson, B., Carpio, A., 2012. *A cellular automata model for biofilm growth*, in: Pimenta, P.M. and Campello, E.M.B. (Eds.), Proceedings of the 10th World Congress on Computational Mechanics, São Paulo, Brazil.

Einarsson, B., Barbaro, A., Birnir, B., Sigurðsson, S., 2012. *Líkön og hermanir að göngum, vexti og þroska uppsjávarfiska (Modelling and simulations of the migration, growth and maturity of capelin)*, Hafrannsóknir, 164: 133-151. (In Icelandic)

Rodriguez, D., Einarsson, B., Carpio, A. *Influence of rugosity on biofilm growth*, Numerical Analysis and Applied Mathematics ICNAAM 2011. AIP Conference Proceedings, Volume 1389, pp. 1454-1457 (2011).

Barbaro, A., Einarsson, B., Birnir, B., Sigurðsson, S., Valdimarsson, H., Pálsson, Ó.K., Sveinbjörnsson, S., Sigurðsson, P., 2009. *Simulations and scaling laws for a bioenergetic model of the Icelandic capelin stock*, in: Secor, D., Petitgas, P., McQuinn, I., Cadrin, S. (Eds.), Proceedings of the 2009 ICES Conference, Berlin, Germany.

Other talks:

Cellular Automata and Cell Growth. Department of Mathematics, UC Santa Barbara, February 24, 2012.

Modeling the migration of capelin, using Dynamic Energy Budget. Theoretical Ecology Seminar, UC Santa Barbara. February 18, 2009

Reiknilíkön fyrir göngumynstur loðnu. (Mathematical models for the migration patterns of capelin). Department of Economics, University of Iceland. November 20, 2009.

Simulating the loðna (Capelin). Department of Mathematics, University of Iceland. August 1, 2007.

A Discrete and Stochastic Simulation Model for Migration of Fish with Application to Capelin in the Seas around Iceland. Department of Mathematics, University of California, Santa Barbara. January 2006.

Posters:

An Interacting Particle Model and Dynamic Energy Budget Theory, Engineering and Natural Sciences Research Symposium, University of Iceland. October 8-9, 2010.

A Dynamic Energy Budget (DEB) model for the Icelandic capelin in an interacting particle system, Workshop: Agent Based complex systems, Institute of Pure and Applied Mathematics, University of California, Los Angeles, October 12, 2009.

Modelling and Simulations of the Migration of Pelagic Fish, SIAM Conference on Applications of Dynamical Systems, Snowbird, Utah May 19, 2009.

Scaling laws in an interacting particle system, Workshop III: Transport Systems in Geography, Geosciences, and Networks, Institute of Pure and Applied Mathematics, University of California, Los Angeles, May 5, 2008.

A Discrete and Stochastic Simulation Model for Migration of Fish with Application to Capelin in the Seas around Iceland, Workshop on Swarming by Nature and by Design, Institute of Pure and Applied Mathematics, University of California, Los Angeles, February 27, 2006.

Extra-curricular activities:

1991-2006 Kopavogur School of Music. Took classical piano lessons from Kristinn Gestsson and later Sólveig Anna Jónsdóttir.

2005 Member of the editorial board of *Verpill*, the journal published by Stigull, the Mathematics and Physics Students association at the University of Iceland.

2004-2005 Student representative in the Department of Mathematics at the University of Iceland.

2004-2005 Student advisor for *Stigull*, the Mathematics and Physics Students association at the University of Iceland.

Hobbies:

I enjoy fly fishing, fly tying, knitting, calligraphy, and all kinds of fun crafts. I like various activities, e.g. soccer (including watching soccer), squash, badminton, hiking and frisbee golf.