

# Ivar Thorson, Ph.D.

## OBJECTIVE

A research- or senior-level position in software development or electrical engineering.

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## EXPERIENCE

**Senior Research Developer** 2014 – 2017  
*Whibse, Inc. & LegitScript, Inc.*

**Research Software Developer** 2012 – 2014  
*Oregon Hearing Research Center  
Oregon Health & Science University*

**President, Founder** 2013 – PRESENT  
*Octopus Robotics, Inc.*

**Adjunct Prof. of Electrical Engineering** 2013  
*Portland State University, USA*

**Post-Doctoral Fellow** 2012  
*Istituto Italiano di Tecnologia, Italy*

**Visiting Researcher** 2010  
*Dept of Brain-Machine Interfaces,  
Advanced Telecommunications Research Center,  
Japan*

**Electrical Engineer** 2005  
*Mod Systems / A Dot Corporation, USA*

## EDUCATION

2009 – 2011 **Ph.D. Advanced Robotics**  
*Istituto Italiano di Tecnologia*

2005 – 2008 **M.S. Mechatronics**  
*Nagoya University, Japan*

2000 – 2004 **B.S. Electrical Engineering**  
*University of Washington, USA*

## PATENTS

US 2013/0074,635: Elastic Rotary Actuator  
ITALY #TO2011A000848: Attuatore Rotante  
Elastico con Meccanismo Ipcicloida

## SCHOLARSHIPS

2005-2008 Full-ride MEXT Japanese government scholarship for research students.

## SKILLS

**CODE** Bash, C, C++, Clojure, Clojurescript, Common Lisp, Emacs Lisp, Git, HTML/CSS, Java, Javascript, MATLAB, Python, NoSQL (Cassandra), SQL (MySQL), and making REST-ful APIs

**DEVOPS** AWS (especially EC2, S3), Cassandra, OpenShift, and So. Much. Linux.

**MATH** Bayesian statistics, digital filtering and signal processing, machine learning, Markov-chain monte-carlo (MCMC), model-based control, rigid body dynamics, wavelets, and always linear algebra + differential equations.

**ELEC.** Verilog, VHDL, FPGAs (Lattice), schematic capture, schematic layout, OrCAD, Eagle, SMT rework, brushless DC motor driver design, motor control power electronics design, inductive sensor design

**MECH.** Solidworks, ProEngineer, Machining, G-code, CNC programming, CNC conversions, manual lathe, manual mill, fiber-reinforced polymers (FRP) and monocoque composite construction techniques

**LANG.** English (Native Speaker), Japanese (JLPT Lvl. 1), Italian

## REPRESENTATIVE PUBLICATIONS

THORSON, I. LIENARD, J. DAVID, S. The Essential Complexity of Auditory Receptive Fields. *PLOS Computational Biology*, 2015.

THORSON, I. A Hopping Monopod Robot Incorporating Nonlinear Series Elastic Actuators, Fiber-Reinforced Polymer Construction, and a Concurrent Asynchronous Dataflow-based Centroidal Momentum Balance Controller. *Ph.D. Thesis, Istituto Italiano di Tecnologia*. 2012.

THORSON, I. CALDWELL, D. A Nonlinear Series Elastic Actuator for Highly Dynamic Motions. *IEEE International Conference on Robotics and Automation, San Francisco, USA*. 2011.