J. Deon Garrett

Chief Systems Engineer at AutoZone, Inc.
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Summary

Machine learning engineer experienced in shipping production-quality software in C++, Java, and other languages. Ph.D. in Computer Science with a strong research record in operations research and machine learning.

Highlights

- Expert: C/C++, Python, Unix/POSIX systems, Machine Learning, Operations Research, Data Science
- Strong: Java, Clojure, Go, Objective-C
- Proficiency in many other languages and platforms

Professional Experience

- **Chief Systems Engineer, AutoZone, Inc.**
  November, 2015 – Present
  I lead the AutoZone Operations Data Science team, where I lead all IT efforts around leveraging all collected data to perform predictive analytics and reporting to answer strategic business questions as identified by the executive committee.

  Prior to assuming this role, I served as a senior technical lead over all of AutoZone's IT projects supporting the commercial, retail store systems, and B2B E-commerce businesses. I personally handle design and some implementation of specific high-profile strategic projects and manage a team of senior engineers who are responsible for design and implementation across the board. Most work involves C++/Qt on the store side and Java and Go for services.

  Notable projects include

  - rearchitecting all commercial pricing systems from a batch oriented nightly process to a service architecture enabling real-time price updates
  - Design of the integration of AutoZone's loyalty program into the autozone.com site
  - Design and implementation of a new system for getting real-time transactional information from the stores

- **Research Scientist, Icelandic Institute for Intelligent Machines**
  August, 2010 – October, 2015
  I led research projects in machine learning and other aspects of artificial intelligence. I served as the principal investigator for multiple successfully funded grant proposals, projects, and industry collaborations. Full publication list available on request or from my web site. Projects included

  - EU funded grant on multi-objective reinforcement learning that led to the development of a flexible problem instance generator allowing better controlled testing of reinforcement learning agents
  - collaboration with Össur ehf., a leading maker of medical prosthetic devices, in which we worked on intelligent recognition of gait aspects to enable an artificial knee and ankle to better adapt their behaviors
  - developed a supervised learning system aimed at detecting seizure behavior from video of zebrafish larvae for the purpose of improving the efficiency of early stage drug development for epilepsy

Part of this work also involved significant work with the wider Machine Learning community, including serving as the local chair for the 2014 International Conference on AI and Statistics.

- **Affiliated Assistant Professor, School of Computer Science, Reykjavík University**
  April, 2011 – October, 2015
  Joint appointment with IIIM, involves light teaching and service responsibilities. In particular, I have taught the Introduction to Machine Learning course each year and an occasional special topics course in Machine Learning.
- **Founder and Director, Greind Technologies, LLC**
  June, 2012 – January, 2014
  Consulting firm specializing in contract software development, particularly in mobile application development for iOS and Android.
- **Technical Architect, R&D, AutoZone, Inc.**
  January, 2009 – August, 2010
  Led R&D initiatives to implement and deploy numerous projects, including
  - a complete "Buy Online, Pick up in Store" solution
  - a unified search engine for many previously isolated AutoZone information repositories
  - the AutoZone iPhone app and backend services supporting both the iPhone and Android apps
  - a new C++/Qt application for managing "paid-outs" – purchases made by AutoZoners on behalf of customers or for store-expenses.
- **Sr. Programmer Analyst, R&D, AutoZone, Inc.**
  June, 2007 – January, 2009
  Investigated and developed hardware and software solutions for various requirements throughout the organization, including self-checkout kiosks, GPS tracking of commercial delivery vehicles, and a move to graphical software development using the Qt framework. I served as a primary liason between the R&D group and the AutoZone software engineering and project management structure.
- **Programmer Analyst, AutoZone, Inc.**
  January, 2007 – June, 2007
  Worked on the development and deployment of AutoZone's next generation part lookup application, Z-net. After previous attempts at constructing Z-net had been delayed by two years, my team delivered the application on time. In addition to design and coding, I handled the preparation and execution of released versions of the software to the more than 4000 stores in the AutoZone chain.
- **Programmer, AutoZone, Inc.**
  August, 2006 – January, 2007
  Supported numerous in-house C and C++ applications and assisted in the development of AutoZone's next generation part lookup application, Z-net.
- **Postdoctoral Research Associate, University of Memphis**
  March, 2008 – May, 2010
  Supervised a team of graduate students on an incremental grant from Navy Personnel Research, Studies, and Technology (NPRST) working on a multiobjective combinatorial optimization problem optimizing the scheduling and assignment of sailors to available jobs and continued participation in weekly research group meetings. Position held concurrently with position at AutoZone, Inc.

Education

- **Ph.D., Computer Science**, University of Memphis.
  Thesis: *Multiobjective Fitness Landscape Analysis and the Design of Effective Memetic Algorithms*.
  Advisor: Dipankar Dasgupta.
  May, 2008.
- **M.S., Computer Science**, Arkansas State University.
  August, 1999.
- **B.S., Computer Science**, Arkansas State University.
  May, 1998.