

A Review of ALNBench by Dendronic Systems Inc.

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Overview

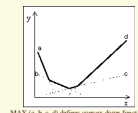
- ✓ What is ALNBench?
 - Motivation/Applications
- ✓ Theory of Multidimensional Piecewise Linear Regression
- ✓ Components of ALNBench
- ✓ Demonstration
- ✓ Questions

What is ALNBench

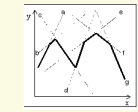
- ✓ Automated Learning Nets
- ✓ Tool that automates the creation of multidimensional linear regression models
- ✓ Facilitates use of “learned” model
- ✓ Also contains API for building “learning” applications

MPLR Model

- ✓ Consists of a set of linear pieces



MAX (a, b, c, d) defines convex-down function



MAX (MIN (a, b, c), MIN (d, e, f, g)) defines a function with two humps

Neural Network Advantages Over Direct Programming

- ✓ Less time to build solution
- ✓ Easier
 - less code
 - less setup
- ✓ Ability to solve hard problems

Advantages of ALNs Over Neural Networks

- ✓ Safety
- ✓ Speed
- ✓ Scalability
- ✓ Broad domain applicability
- ✓ Embedding expert knowledge
- ✓ Function inversion
- ✓ Ease of understanding

Other Advantages Include

- ✓ Uses arbitrary ranges of data values.
- Grows the architecture automatically.
- Allows the user to easily set the parameters.
- Trains and evaluates at high speed.
- Tells the user the sensitivity of the output to each input in different parts of the input space.
- Gives the user unprecedented control over the learned function

Applications

- ✓ Analysis
- ✓ Prediction
- ✓ Control

Views

- ✓ Workspace View
- ✓ Charts View
- ✓ Report View
- ✓ LF Statistics View
- ✓ Log View

Steps to Using ALNBench

- ✓ Create the ALN
- ✓ Load in the training and test data
- ✓ Set the ALN training parameters
- ✓ Train the ALN
- ✓ Examine the results
- ✓ Test other data sets against learned model
- ✓ Save the .alb file

Demonstration

- ✓ United States Total Stock Returns, 1871-1998