# The Manual of ReverseAD

Mu Wang

June 26, 2016

Abstract

(TODO)

## Contents

Pı	relim	inaries of Automatic Differentiation	iii				
1	Basic Usage of ReverseAD						
	1.1	Download And Installation	1				
	1.2	The One Minute Example	1				
	1.3	Additional Options and Examples	1				
		1.3.1 Disk Tape	1				
		1.3.2 Forward-over-Reverse Mode	1				
<b>2</b>	Internal Implementation						
	2.1	Function Trace	2				
	2.2	Active Type	2				
	2.3	Indexing Scheme	2				
	2.4	Derivative Computation Classes	2				
		2.4.1 Adjoints, Hessian and Third Order	2				
		2.4.2 Generic Reverse Mode	2				
		2.4.3 Generating Flat Code	2				
	2.5	Forward-over-Reverse Mode	2				
	2.6	Time-Step Functions	2				

# Preliminaries of Automatic Differentiation

(TODO)

#### Chapter 1

## Basic Usage of ReverseAD

- 1.1 Download And Installation
- 1.2 The One Minute Example
- 1.3 Additional Options and Examples
- 1.3.1 Disk Tape
- 1.3.2 Forward-over-Reverse Mode

#### Chapter 2

### Internal Implementation

- 2.1 Function Trace
- 2.2 Active Type
- 2.3 Indexing Scheme
- 2.4 Derivative Computation Classes
- 2.4.1 Adjoints, Hessian and Third Order
- 2.4.2 Generic Reverse Mode
- 2.4.3 Generating Flat Code
- 2.5 Forward-over-Reverse Mode
- 2.6 Time-Step Functions