rnn: RNN, GRU, and LSTM in native R

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Abstract

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1 About package rnn in R

Writing several lines of code:

```
library(rnn)
```

These are all the exported functions:

```
ls("package:rnn")
```

```
## [1] "bin2int"          "epoch_annealing"  "epoch_print"
## [4] "int2bin"          "loss_L1"          "predictr"
## [7] "run.finance_demo" "run.rnn_demo"     "trainr"
```

and now including the non-exported:

```
ls(getNamespace("rnn"), all.names=TRUE)
```

```
##  [1] ".__NAMESPACE__."      ".__S3MethodsTable__." ".packageName"
##  [4] "b2i"                  "backprop_gru"         "backprop_lstm"
##  [7] "backprop_r"           "backprop_rnn"         "bin2int"
## [10] "clean_lstm"           "clean_r"              "clean_rnn"
## [13] "epoch_annealing"      "epoch_print"          "i2b"
## [16] "init_gru"             "init_lstm"            "init_r"
## [19] "init_rnn"             "int2bin"              "loss_L1"
```

```
## [22] "predict_gru"          "predict_lstm"          "predict_rnn"
## [25] "predictr"             "run.finance_demo"      "run.rnn_demo"
## [28] "trainr"               "update_adagrad"        "update_r"
## [31] "update_sgd"
```

2 Internals

We can show the code of a function as such (note that we can just remove them and add their definitions to the example code):

```
int2bin
```

```
## function(integer, length=8) {
##   t(sapply(integer, i2b, length=length))
## }
## <bytecode: 0x5564f976fae8>
## <environment: namespace:rnn>
```


Acknowledgments

We gratefully acknowledge support from ...

A This is the first appendix section

A.1 A subsection

A.1.1 A subsubsection

some text