# The TikZducks package

using ducks in TikZ



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https://github.com/samcarter/tikzducks
 https://ctan.org/pkg/tikzducks

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# 1 Introduc(k)tion

Rubber ducks can be made of latex, but can they also be made with LATEX? Yes! The TikZducks package is a LATEX package for rubber ducks to be used in TikZ pictures. This project is a continuation of How can we draw a duck?

Without the friendly and helpful community of TEX users this package would not exist. A big thanks to all the users and contributors of this package!

This package is work in progress, therefore I would be happy to hear your feedback and ideas how to improve the package. The development version of the source code can be found at <a href="https://github.com/samcarter/tikzducks">https://github.com/samcarter/tikzducks</a>, including an issue tracker. A more stable version of the package can be found on CTAN (<a href="https://ctan.org/pkg/tikzducks">https://ctan.org/pkg/tikzducks</a>) and is included in both TEXLive and MiKTEX as tikzducks. If you seek any other assistance (not bug reports/feature requests), I suggest asking at <a href="https://topanswers.xyz/tex">https://topanswers.xyz/tex</a>.

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The shown example ducks are purely fictional characters, any resemblance to real ducks or persons is purely coincidental and no copyright infringement is intended.



# 2 Usage

The basic usage is fairly simple, to draw a duck:



To customise this basic duck, the package uses pgf keys. For almost all parts the colour can be changed using <shape name>=<colour name>. For example to change the colour of the duck:

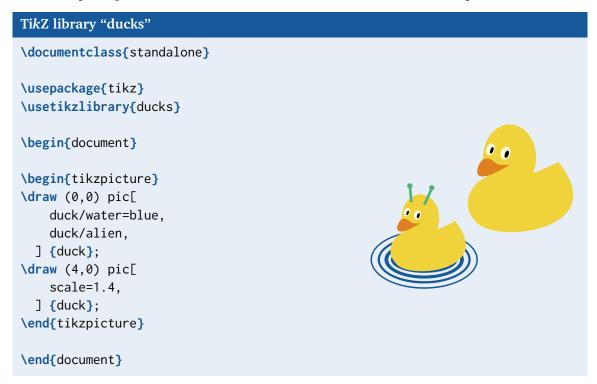


If the keyword consists of multiples words, it works both with and without spaces. In the following usually the version without spaces is given.

In addition to the keys defined in this package, all usual TikZ and pgf keys can also be used. For example if the size of the ducks should be changed or shifted:



To make the usage easier for the TikZ-savvy users, Andrew Stacey contributed a TikZ library. It can be loaded with **\usetikzlibrary**{ducks}. In addition to the normal functionality of the TikZducks package, the ducks are now also available as pic. A short example:



For everybody suffering from anatidaephobia, there is also a special option to not draw the duck:

```
Invisible duck

\begin{tikzpicture}
   \duck[invisible]
\end{tikzpicture}
```

This can also be useful to recycle some of the accessories presented in 2.4.

For the purists, there is also a picture mode variant:

# picture mode duck \begin{picture}(42,44) \picduck \end{picture}

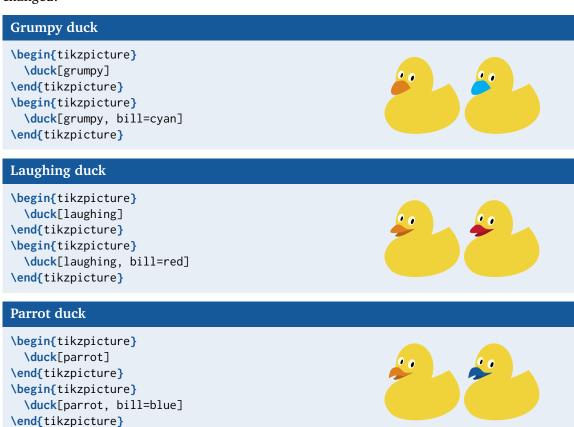


#### 2.1 Body parts

The various parts of the duck can also be coloured independently, i.e. body, head or bill:

# 

Furthermore using the keywords grumpy, laughing or parrot the shape of the bill can be changed:



#### 2.2 Hair styles

Some duck also like to have nice hair cuts, several different hair styles are available:





#### Short hair duck

\begin{tikzpicture}
 \duck[shorthair]
\end{tikzpicture}



# Parting hair duck

\begin{tikzpicture}
 \duck[parting]
\end{tikzpicture}



## Crazy hair duck

\begin{tikzpicture}
 \duck[crazyhair]
\end{tikzpicture}



#### Receding hair duck

\begin{tikzpicture}
 \duck[recedinghair]
\end{tikzpicture}



## Mohican duck

\begin{tikzpicture}
 \duck[mohican]
\end{tikzpicture}



#### **Mullet duck**

\begin{tikzpicture}
 \duck[mullet]
\end{tikzpicture}





And of course the colour of each hair style can be adjusted:

#### Coloured hair duck

\begin{tikzpicture}
 \duck[longhair=teal]
\end{tikzpicture}

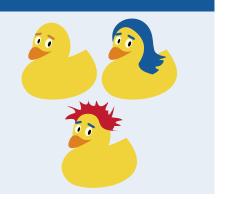


Eyebrows and a beard are also part of the package. The colour choice is more tricky for them – if a colour is explicitly specified (eyebrow=<colour name> or beard=<colour name>) this colour is of course used, but if no colour is given, it first falls back to the hair colour and only if the duck does not have any hairs, the default colour is applied.

# Eye brow duck

\begin{tikzpicture}
 \duck[eyebrow]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[longhair=blue,eyebrow]
\end{tikzpicture}

\begin{tikzpicture}
 \duck[crazyhair=red,eyebrow=blue]
\end{tikzpicture}



### Beard duck<sup>1</sup>

\begin{tikzpicture}
 \duck[beard=white!80!brown]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[recedinghair=white,beard]
\end{tikzpicture}



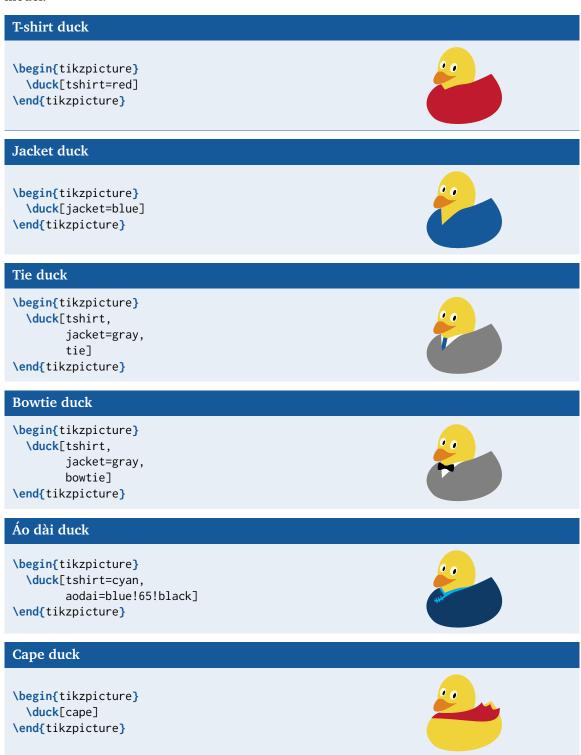
Please note that not all of the accessories, especially hats, shown in the following sections, will suite every hairstyle. In case the desired combination of hair style and hat does not work well, there is always the possibility to look up the original definition of the hat in the tikzducks source code and recreate it with a more suitable position or size.

 $<sup>^1</sup>$  The beard is based on an answer by Mihikma, see <code>https://tex.stackexchange.com/a/401777/36296</code>



# 2.3 Clothing

A respectable duck needs a suitable wardrobe. It can choose from several different garments. In it's infinite wardrobe these items are available in all colours definable in the current colour model.



For more ways to customise the clothing also have a look at the football ducks in Section 5.



#### 2.4 Accessories

There is a multitude of things a duck might need. The following examples all also work without specifying a colour, but giving both an example with and one without explicit colour just makes this overview unnecessary long, so only one is given.

#### Swimming duck

\begin{tikzpicture}
 \duck[water=cyan!50!blue]
\end{tikzpicture}



#### Alien duck

\begin{tikzpicture}
 \duck[alien=green!50!brown]
\end{tikzpicture}



#### Hat duck

\begin{tikzpicture}
 \duck[hat=red!50!black]
\end{tikzpicture}



#### Tophat duck

\begin{tikzpicture}
 \duck[tophat=blue!20!black]
\end{tikzpicture}



## Strawhat duck





#### Basecap duck

\begin{tikzpicture}
 \duck[cap=red!80!black]
\end{tikzpicture}



#### Conical hat duck

\begin{tikzpicture}
 \duck[conicalhat=brown]
\end{tikzpicture}



#### Santa Duck



#### **Graduate duck**



#### Beret duck

\begin{tikzpicture}
 \duck[beret=red!70!black]
\end{tikzpicture}



## Peaked cap duck

\begin{tikzpicture}
 \duck[peakedcap=blue!50!black]
\end{tikzpicture}





#### Harlequin duck



#### Sailor duck

\begin{tikzpicture}
 \duck[sailor=white]
\end{tikzpicture}



#### **Bobble hat duck**

\begin{tikzpicture}
 \duck[bobblehat=red!70!red]
\end{tikzpicture}



#### **Crown duck**

\begin{tikzpicture}
 \duck[queencrown=gray]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[kingcrown=brown!70!red]
\end{tikzpicture}



#### **Knight duck**

\begin{tikzpicture}
 \duck[helmet=gray]
\end{tikzpicture}



#### Viking duck

\begin{tikzpicture}
 \duck[viking=gray]
\end{tikzpicture}





#### **Devil duck**

\begin{tikzpicture}
 \duck[devil=red]
\end{tikzpicture}



#### Unicorn duck

\begin{tikzpicture}
 \duck[body=pink,
 unicorn=magenta!60!violet,
 longhair=magenta!60!violet]
\end{tikzpicture}



# Bunny duck<sup>2</sup>



# Sheep duck<sup>3</sup>



#### Horse duck<sup>4</sup>



<sup>&</sup>lt;sup>3</sup> The in-ear colour of the sheep is chosen to be the same as the bill



<sup>&</sup>lt;sup>2</sup> Unless an explicit colour is specified, the bunny ears will take the body colour as default colour, the inner parts will be drawn in a lighter shade.

#### Witch duck



#### Magic duck



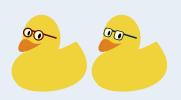
#### Sombrero Duck<sup>5</sup>

```
\begin{tikzpicture}
  \duck[
    sombrero=orange!70!yellow,
    sombreroa=green!70!blue,
    sombrerob=red,
    sombreroc=blue
  ]
\end{tikzpicture}
```



#### **Glasses duck**

\begin{tikzpicture}
 \duck[glasses=red!50!black]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[squareglasses=blue!50!black]
\end{tikzpicture}



#### Sunglasses duck

\begin{tikzpicture}
 \duck[sunglasses=blue]
\end{tikzpicture}



 $<sup>^{\</sup>rm 5}\,$  The sombrero was kindly contributed by Carla Maggi



<sup>&</sup>lt;sup>4</sup> If no colour is specified, the horse tail will have the same colour as the hair

#### Superhero duck

\begin{tikzpicture}
 \duck[mask=teal, cape=teal]
\end{tikzpicture}



#### Signpost duck

```
\begin{tikzpicture}
\duck[signpost=42]
\end{tikzpicture}
\begin{tikzpicture}
\duck[signpost=\scalebox{0.4}{
    \parbox{2cm}{\color{black}
    \centering Science\\ first}},
    signcolour=brown!70!gray,
    signback=white!80!brown]
\end{tikzpicture}
```



#### Speaking duck<sup>6</sup>



#### Thinking duck<sup>6</sup>



#### Buttons duck<sup>7</sup>

\begin{tikzpicture}
 \duck[buttons=brown!50!black]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[jacket=red,buttons]
\end{tikzpicture}



 $<sup>^{\</sup>rm 6}\,$  Both the speech and thought bubble are inspired by the wonderful ducksay package



#### Dinner jacket duck



#### **Book duck**



#### Cricket duck

\begin{tikzpicture}
 \duck[cricket=red!50!black]
\end{tikzpicture}



#### Football duck<sup>8</sup>

\begin{tikzpicture}
 \duck[football=white!85!yellow]
\end{tikzpicture}



### Hockey duck

\begin{tikzpicture}
 \duck[hockey=brown!70!black]
\end{tikzpicture}



#### Lightsaber duck<sup>9</sup>



 $<sup>^8</sup>$  The football duck is simplified version from an answer by Carla Maggi, <code>https://tex.stackexchange.com/a/387126/36296</code>



 $<sup>\</sup>overline{\ }^{7}$  In case the duck is wearing a jacket, the buttons are positioned a bit lower

#### Torch duck

\begin{tikzpicture}
 \duck[torch=black!30!gray]
\end{tikzpicture}



#### **Prison duck**

\begin{tikzpicture}
 \duck[prison=gray]
\end{tikzpicture}



#### **Shepherd duck**

\begin{tikzpicture}
 \duck[crozier=brown!80!black]
\end{tikzpicture}



#### Necklace duck

\begin{tikzpicture}
 \duck[necklace=gray!20!white]
\end{tikzpicture}



#### **Icecream duck**



#### Chef duck<sup>10</sup>



<sup>&</sup>lt;sup>9</sup> Dedicated to the Counter Wizard (aka Christian Hupfer)



#### Cake duck

\begin{tikzpicture}
 \duck[cake=red!50!violet!80!black]
\end{tikzpicture}



#### Pizza duck

\begin{tikzpicture}
 \duck[pizza]
\end{tikzpicture}



## **Baguette duck**

\begin{tikzpicture}
 \duck[baguette=brown]
\end{tikzpicture}



#### **Cheese duck**

\begin{tikzpicture}
 \duck[cheese=orange]
\end{tikzpicture}



#### Milkshake duck

\begin{tikzpicture}
 \duck[milkshake=red!20!white]
\end{tikzpicture}



## Wine duck<sup>11</sup>

\begin{tikzpicture}
 \duck[wine=red!70!black]
\end{tikzpicture}



<sup>&</sup>lt;sup>10</sup>The chef duck is based on an idea by Carla Maggi, please see the following link for a more sophisticated version of the toque and the rolling pin: https://tex.stackexchange.com/a/387126/36296



#### Cocktail duck

\begin{tikzpicture}
 \duck[cocktail]
\end{tikzpicture}



## Banana duck<sup>12</sup>

\begin{tikzpicture}
 \duck[banana=yellow!80!orange]
\end{tikzpicture}



## Stick duck<sup>12</sup>

\begin{tikzpicture}
 \duck[stick=red!60!green,leaf=green!70!red]
\end{tikzpicture}



#### Basket duck<sup>13</sup>

\begin{tikzpicture}
 \duck[basket=brown]
\end{tikzpicture}



#### Easter duck<sup>13</sup>



#### Wing duck

\begin{tikzpicture}
 \duck[wing=yellow!90!brown]
\end{tikzpicture}



 $<sup>^{13}</sup>$ The basket and Easter basket was kindly contributed by Benito van der Zander



<sup>&</sup>lt;sup>11</sup>According to the resident Italian wine expert of the TeX.SE chatroom, the duck is drinking a fine Brunello di

 $<sup>^{12}</sup>$ The banana and the stick were kindly contributed by @NuzzleTOO

#### **Ducktor**

\begin{tikzpicture}
 \duck[stethoscope=gray!80!black]
\end{tikzpicture}



#### **Neckerchief duck**



#### Winter duck



#### Snow Duck<sup>14</sup>

\begin{tikzpicture}
 \duck[snowduck=white]
\end{tikzpicture}



#### **Shovelling Duck**

\begin{tikzpicture}
 \duck[shovel=gray]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[pickaxe=gray]
\end{tikzpicture}



#### **Sweeping Duck**



 $<sup>^{14}\</sup>mbox{The}$  snowduck is dedicated to all Japanese TEX users



#### **Umbrella Duck**

\begin{tikzpicture}
 \duck[umbrella=cyan]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[umbrellaclosed=cyan]
\end{tikzpicture}



#### Fortune Quacker<sup>15</sup>

\begin{tikzpicture}
 \duck[crystalball=cyan]
\end{tikzpicture}



### **Handbag Duck**

\begin{tikzpicture}
 \duck[handbag=red!70!black]
\end{tikzpicture}



#### **Vampire Duck**

\begin{tikzpicture}
 \duck[vampire=white]
\end{tikzpicture}
\begin{tikzpicture}
 \duck[laughing, vampire=white]
\end{tikzpicture}



## Overleaf Duck<sup>16</sup>

\begin{tikzpicture}
 \duck[overleaf]
\end{tikzpicture}



#### **Megaphone Duck**

\begin{tikzpicture}
 \duck[megaphone=lightgray]
\end{tikzpicture}



<sup>&</sup>lt;sup>16</sup> added to celebrate that TikZducks are now also available on overleaf, see https://www.overleaf.com/blog/tex-live-upgrade-september-2019



 $<sup>^{15}\</sup>mbox{The}$  crystal ball is kindly contributed by @marmot

#### 3 Random ducks

With all these available accessories it might be hard to decide which one to choose, but don't worry the TikZducks provide a solution for this dilemma, the random duck, or short \randuck, which automatically creates a duck with a randomly chosen accessories and something on top of the head (hair, a hat, ears, alien antenna ...)

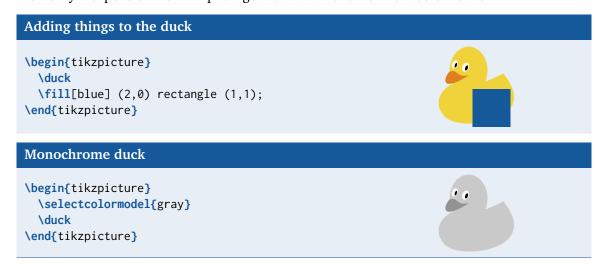
# Random duck \begin{tikzpicture} \randuck \randuck[xshift=3cm, scale=0.7] \end{tikzpicture}

In case the duck should not be completely random, but only some of the random elements are desired, these can be accessed independently by using the randomhead and randomaccessories options for a random headpiece and a random accessories, respectively.



#### 4 Further customisation

This package will never be able to do everything every potential user might want to do, as this number quickly approaches  $\infty$  – but as the ducks are simply things inside tikzpictures, all the heavy weapons of the TikZ package are available for further customisation.





For convenience the more complex paths of this package are stored in macros, which can easily be reused:

# 

In detail, the following paths are available:

```
\duckpathbody, \duckpathgrumpybill, \duckpathbill, \duckpathtshirt,
\duckpathjacket, \duckpathcape, \duckpathshorthair, \duckpathlonghair,
\duckpathcrazyhair, \duckpathrecedinghair, \duckpathcrown,
\duckpathmohican, \duckpathmullet, \duckpathqueencrown,
\duckpathkingcrown, \duckpathdarthvader, \duckpathhorsetail
```

In case one of the other shapes is needed, please have a look at the package source code, which can be found in tikzducks.sty.

To ease the placement of further accessories, some particular spots of the duck are marked with TikZ coordinates, namely the wing, head, bill and tail.

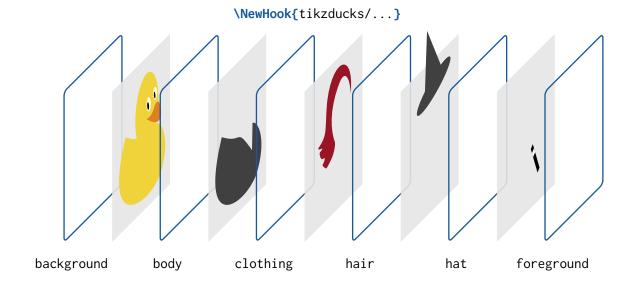
```
Coordinates
\begin{tikzpicture}[scale=2]
                                                                 Head
  \duck
  \fill[black] (wing) circle (0.04);
  \fill[black] (head) circle (0.04);
                                                                             ● Tail
  \fill[black] (bill) circle (0.04);
                                                             • Bill
  \fill[black] (tail) circle (0.04);
  \node[xshift=15] at (wing) {Wing};
                                                                • Wing
  \node[xshift=15] at (head) {Head};
  \node[xshift=18] at (bill) {Bill};
  \node[xshift=15] at (tail) {Tail};
\end{tikzpicture}
```

To distinguish coordinates from multiple ducks in the same tikzpicture, one can name the ducks using the option name. If this option is used, the coordinates are prefixed with the respective name and a dash: <name>-<coordinate>.



Sometimes it might desirable to add things at a specific z-position, for example re-draw a t-shirt with some pattern that should be below the duck's hair and accessories. To facilitate this the TikZducks provide a couple of hooks:

- \NewHook{tikzducks/background}
- \NewHook{tikzducks/body}
- \NewHook{tikzducks/clothing}
- \NewHook{tikzducks/hair}
- \NewHook{tikzducks/hat}
- \NewHook{tikzducks/foreground}



These hooks can be utilised by the user as needed:



# 5 Football ducks - contributed by Carla Maggi

TikZducks are huge sports fans! They do a lot of different sports themselves (see all the piece of sports equipment amongst the accessories), but to cheer their favourite teams, they need suitable fan clothing. In The Duck Pond Carla Maggi was so kind to contribute the necessary code to dress the ducks in their team's colours.

A (non-representative) survey<sup>17</sup> showed that most sports jerseys can be emulated by drawing stripes of various colours, sizes and orientations – and this is exactly what the stripes macro does, drawing stripes across the shape of the duck's jacket. In order to preserve the whole flexibility of this powerful macro, it was integrated as an independent command into the TikZducks package, this means it can simply be used on top of a drawn duck:

#### stripes macro

\begin{tikzpicture}
 \duck
 \stripes
\end{tikzpicture}



This may be impractical as the stripes are drawn on top of any accessories or hair the duck may have. Therefore the option stripes let's you inject any code you would normally use to draw the stripes at the correct layer above the duck's clothing but beneath the hair and accessories:

#### Using stripes for tikzducks

\begin{tikzpicture}
 \duck[longhair,stripes={\stripes}]
\end{tikzpicture}



Not all teams wear vertically stripped jerseys, therefore many parameters can be adjusted to best emulate your favourite teams jerseys. The available options are:

color colour of the stripes, default: black

distance periodicity length of the stripes, default: 0.3

width stripe width, default: 0.15

height length of the stripes, default: 2.7

initialx x coordinate of staring point, default: 0.1 initialy y coordinate of staring point, default: -0.3 rotate rotation angle in degree, default: -10 emblem possibility to add logos etc., default: empty

<sup>&</sup>lt;sup>17</sup>see the selection of jerseys in https://tex.stackexchange.com/a/387126/36296



Please note that the colour of the stripes only affects the stripes themselves, to influence the colour of the empty space between the stripes, clothe the duck with a tshirt or jacket of the desired colour underneath the stripes.

```
stripes options
\begin{tikzpicture}
  \duck[stripes]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[color=blue]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[distance=0.6]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[width=0.03]}]
\end{tikzpicture}
\begin{tikzpicture}
\duck[stripes={\stripes[emblem={
\includegraphics[width=.3cm]{example-image-a}
}]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[height=1.0]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[initialx=1]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[initialy=0.8]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[rotate=45]}]
\end{tikzpicture}
\begin{tikzpicture}
  \duck[stripes={\stripes[rotate=-45]}]
\end{tikzpicture}
```

For more complex or multicoloured designs the stripes can easily be stacked on top of each other:



A few examples to see stripes in action:

#### **Inter duck**



#### Juve duck



#### Milan duck



#### Mönchengladbach duck



#### Palmeiras duck

```
\definecolor{verdep}{RGB}{0,100,55}%
\begin{tikzpicture}
  \duck[tshirt=green, jacket=verdep, football]
\end{tikzpicture}
```



#### Cagliari duck





#### Sampdoria duck



#### Brescia duck



# 6 Examples

To see more examples of what can be done with the TikZducks, you are invited to visit https://github.com/samcarter/tikzducks.

If you have created a duck you would like to share with the community, I would be happy to add it to this collection, just make a pull request or open an issue in the bug tracking system.

