

MOST Exercise

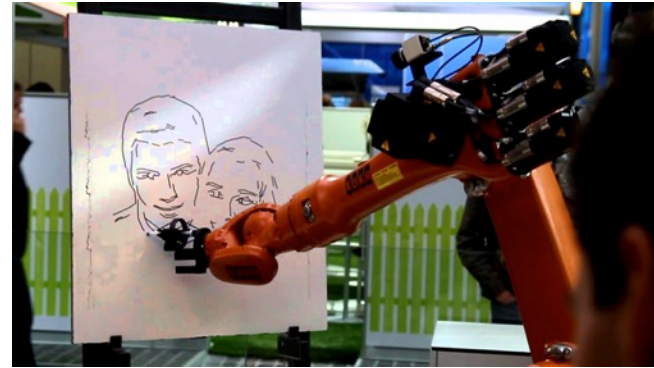
Roles at Runtime with SCROLL

19.01.16

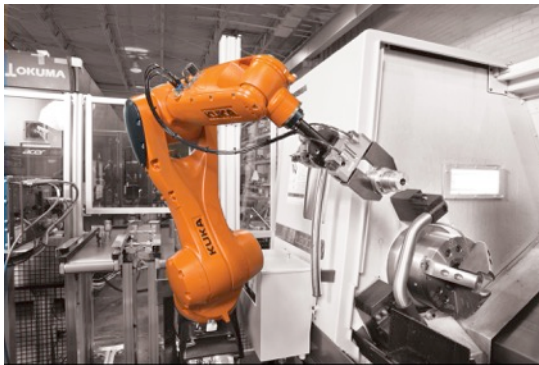
The Kuka Robot Arm



<http://autsys.aalto.fi/en/attach/IntelligentRobotics/kukalwr4.orig.jpg>



<https://i.ytimg.com/vi/Wi0CsWGDnNU/maxresdefault.jpg>



http://mms.businesswire.com/media/20140905005033/en/430454/5/Press_Release_Image_highres.jpg



<http://trends.directindustry.com/wp-content/uploads/2014/03/The-Duel.jpg>

Simple Example (plain Scala)

```
class KukaArm(val name: String)

class KukaArmExample {

  val player = new KukaArm("Pete")

  // say your name
  println(player.name)

  // assemble something
  player assemble()

  // interact with someone
  player interact()
}
```

Will not work

- behavior not available!
- maybe adding some roles?

Simple Example (still basic Scala)

```
class KukaArm(val name: String)
```

```
class KukaArmExample {
```

```
  val player = new KukaArm("Pete")
```

```
  class Autonomous {  
    def assemble() { println("I am working on that ...") }  
  }
```

```
  class HumanFriendly {  
    def interact() { println("Carefully interacting ...") }  
  }
```

```
  // say your name  
  println(player.name)
```

```
  // assemble something  
  player assemble()
```

```
  // interact with someone  
  player interact()
```

Still does
not work

- system does not know “where” the correct behavior is located at
- maybe calling SCROLL?

SCROLL: enabling Role-playing

```

class KukaArm(val name: String)

class KukaArmExample extends Compartment {
  val player = new KukaArm("Pete")

  class Autonomous {
    def assemble() { println("I am working on that ...") }
  }

  class HumanFriendly {
    def interact() { println("Carefully interacting ...") }
  }

  // say your name
  println(player.name)

  player play new Autonomous()
  // assemble something
  ±player assemble()

  player play new HumanFriendly()
  // interact with someone
  ±player interact()

```

Perfect

- attaching roles with `play`
- accessing role behavior with `±`
- ID-safe instance based object union

Implementation (https://github.com/max-leuthaeuser/SCROLL)

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SCROLL - SCala ROLES Language (A playground for role dispatch based on Scala)

253 commits 2 branches 0 releases 1 contributor

Branch: master SCROLL / +

Commit	Message	Time
max-leuthaeuser	added role group API, no checks yet, no documentation yet!	Latest commit b3a5aff 4 days ago
benchmarks/src	- fixed broken import	6 days ago
core/src/main	- added role group API, no checks yet, no documentation yet!	4 days ago
examples/src/main/scala/scroll/ex...	- fixed broken import	6 days ago
tests/src/test/scala/scroll/tests	- added role group API, no checks yet, no documentation yet!	4 days ago
.gitattributes	- added .gitattributes file	a year ago
.gitignore	- updated BankExample	11 months ago
.travis.yml	- updated travis config w.r.t. to project layout refactoring	25 days ago
LICENSE	- replaced runtime universe reflections	4 months ago
README.md	- updated links	11 days ago
build.sbt	- removed dependency to apache commons code	6 days ago

Code

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