Put a title here on multiple lines if needed

Put a subtitle here

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May 10, 2014

Introduction

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Overview

Snippets

Basic frame

Subtitle

...

Citations and references

cite, label and ref commands

Eq. (2) define the Bellman equation [Bel56]

$$V(x) = \max_{a \in \Gamma(x)} \{F(x, a) + \beta V(T(x, a))\} \tag{1}$$

Lists

itemize, enumerate and description commands

- item 1
- item 2
- ...

1. item 1
2. item 2
3. ...

First item 1

Second item 2

Last ...

Colors

color environment

small

footnotesize

scriptsize

tiny

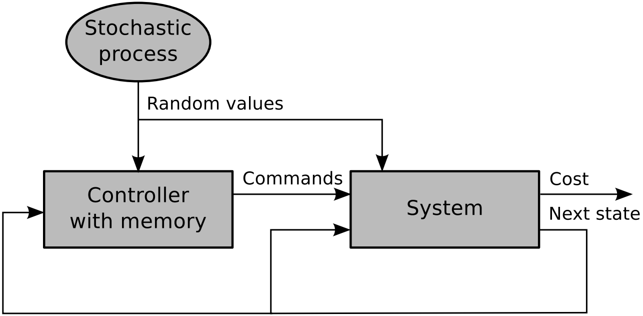
Fonts color

color environment

Red Green Blue

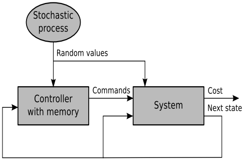
Centered image

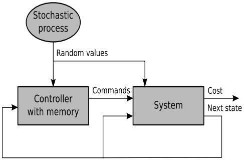
includegraphics command

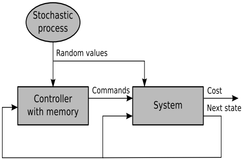


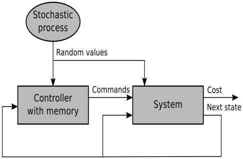
Subfigures

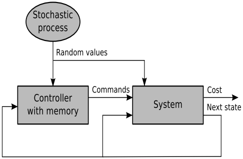
figure, subfigure and includegraphics commands

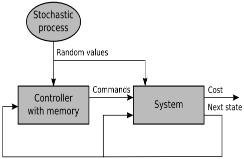












Blocks

block command

Block 1

Blablabla

Block 2

Blablabla

Equations

$$V(x) = \max_{a \in \Gamma(x)} \{F(x,a) + \beta V(T(x,a))\}$$

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$$V(x) = \max_{a \in \Gamma(x)} \{F(x,a) + \beta V(T(x,a))\} \tag{2}$$

Equation array

eqnarray command

$$
\begin{eqnarray*}
\text{Expectation of N} & = & \sum_{i=1}^{n} \mathbb{E}(Z_i) \\
& = & \sum_{i=1}^{n} \frac{\gamma}{d^{\beta/2}} \frac{c(d)^{\beta}}{i^{\alpha\beta}} \\
& = & \frac{\gamma}{d^{\beta/2}} c(d)^{\beta} \sum_{i=1}^{n} \frac{1}{i^{\alpha\beta}} \\
& = & z
\end{eqnarray*}
$$

$$
\begin{eqnarray}
\text{Variance of N} & = & \sum_{i=1}^{n} V(Z_i) \\
& \leq & \sum_{i=1}^{n} \mathbb{E}(Z_i) \qquad (\text{as } V(Z_i) \leq \mathbb{E}(Z_i)) \\
& \leq & z \nonumber
\end{eqnarray}
$$

Matrices

$$A_{m,n} = \begin{pmatrix} a_{1,1} & a_{1,2} & \cdots & a_{1,n} \\ a_{2,1} & a_{2,2} & \cdots & a_{2,n} \\ \vdots & \vdots & \ddots & \vdots \\ a_{m,1} & a_{m,2} & \cdots & a_{m,n} \end{pmatrix}$$

$$M = \begin{bmatrix} \frac{5}{6} & \frac{1}{6} & 0 \\ \frac{5}{6} & 0 & \frac{1}{6} \\ 0 & \frac{5}{6} & \frac{1}{6} \end{bmatrix}$$

$$M = \begin{array}{c} \\ A \\ B \end{array} \begin{array}{c} \begin{array}{cc} x & y \end{array} \\ \begin{pmatrix} 1 & 0 \\ 0 & 1 \end{pmatrix} \end{array}$$

Systems of equation array

$$f(n) = \begin{cases} n/2 & \text{if } n \text{ is even} \\ -(n+1)/2 & \text{if } n \text{ is odd} \end{cases}$$

Mathematical programming

with align

$$
\begin{aligned}
\max \quad & z = 4x_1 + 7x_2 \\
\text{s.t.} \quad & 3x_1 + 5x_2 \leq 6 \qquad (5) \\
& x_1 + 2x_2 \leq 8 \qquad (6) \\
& x_1, x_2 \geq 0
\end{aligned}
$$

Mathematical programming

with alignat

$$\begin{alignat*}{5}
\text{Max} \quad & z = x_1 + 12x_2 \\
\text{s.t.} \quad & 13x_1 + x_2 + 12x_3 &&\ \leq\ && 5 \\
& \quad x_1 \qquad + \quad x_3 &&\ \leq\ && 16 \\
& 15x_1 + x_2 &&\ =\ && 14 \\
& x_j \geq 0,\ j = 1, 2, 3.
\end{alignat*}$$

$$\begin{alignat}{5}
\text{Max} \quad & z = x_1 + 12x_2 \notag \\
\text{s.t.} \quad & 13x_1 + x_2 + 12x_3 &&\ \leq\ && 5 \tag{7} \\
& \quad x_1 \qquad + \quad x_3 &&\ \leq\ && 16 \tag{8} \\
& 15x_1 + x_2 &&\ =\ && 14 \tag{9} \\
& x_j \geq 0,\ j = 1, 2, 3. \notag
\end{alignat}$$

Animations

Slide 1

- . . .
- . . .

Animations

Slide 2

- . . .
- . . .

Animations

Slide 3

- ...
- ...

Algorithms

algorithmic command

Require: $\boldsymbol{\omega}$, $\boldsymbol{\omega}'$, $\mathbf{x}^*$, β, γ and (unknown).
  for all $n = 1, 2, 3, \ldots$ **do**
    $\mathbf{x}_{\mathbf{x}^*,n,\boldsymbol{\omega},\boldsymbol{\omega}'} = \mathrm{Optimize}(\mathbf{x}_{\mathbf{x}^*,1,\boldsymbol{\omega},\boldsymbol{\omega}'}, \ \ldots \ , \mathbf{x}_{\mathbf{x}^*,n-1,\boldsymbol{\omega},\boldsymbol{\omega}'}, \ y_1, \ \ldots \ , \ y_{n-1}, \ \boldsymbol{\omega}')$
    if $\boldsymbol{\omega}_n \leq \mathbb{E}f(\mathbf{x}_{\mathbf{x}^*,n,\boldsymbol{\omega},\boldsymbol{\omega}'})$ **then**
      $y_n = 1$
    else
      $y_n = 0$
    end if
  end for
  return $\mathbf{x}_{\mathbf{x}^*,n,\boldsymbol{\omega},\boldsymbol{\omega}'}$

Verbatim

To insert a verbatim paragraph, the frame have to be declared "fragile". The title has to be written in frametitle command, not as argument of frame (I don't know why...).

```
    .--.
   |o_o |
   |:_/ |
  //   \ \
 (|     | )
/'\_   _/`\
\___)=(___/

# gcc -o hello hello.c
```

Listings I

```python
#!/usr/bin/env python
# -*- coding: utf-8 -*-

# Author: Jérémie Decock

def main():
    """Main function"""

    print "Hello world!"

if __name__ == '__main__':
    main()
```

listings/test.py

Table

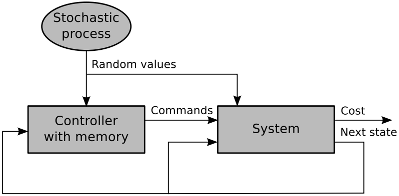
tabular command

	$\gamma = 1$ (small noise)	$\gamma < 1$ (large noise)
Proved rate for R-EDA	$\frac{1}{\beta} \leq \alpha$	$\frac{1}{2\beta} \leq \alpha$
Former lower bounds	$\alpha \leq 1$	$\alpha \leq 1$
R-EDA experimental rates	$\alpha = \frac{1}{\beta}$	$\alpha = \frac{1}{2\beta}$
Rate by active learning	$\alpha = \frac{1}{2}$	$\alpha = \frac{1}{2}$

Multi-columns

columns and column commands

Blablabla



URL

```
http://www.inria.fr/
```

Conclusion

Conclusion

. . .

References I

Richard Bellman, *Dynamic programming and lagrange multipliers*, Proceedings of the National Academy of Sciences of the United States of America **42** (1956), no. 10, 767.

Title

Subtitle

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