

R scripts for nonparametric function estimation

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Non- and Semiparametric Function Estimation

Course outline (32h in total)

- ▶ [6h] introduction + histogram
- ▶ [10h] kernel density estimation
- ▶ [10h] nonparametric regression
- ▶ [6h] semiparametric extensions: ...

If you want to try it ...

→ R material for "Nonparametric and Semiparametric Models"

- ▶ <http://www.marlenemueller.de/nspm.html>

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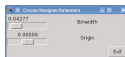
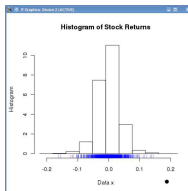
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Histogram


- step function
- parameters: binwidth, origin

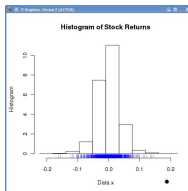
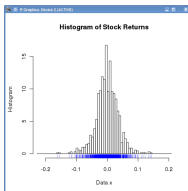
different **binwidth** settings →  [SPMhistogram-Sliders.R](#)



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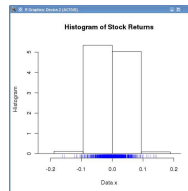
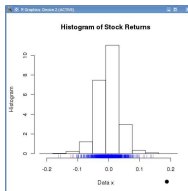
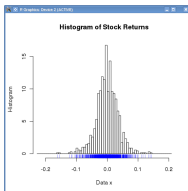
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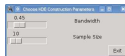
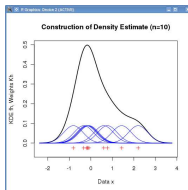
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Kernel Density Estimation

- local averaging
- different degree of smoothness

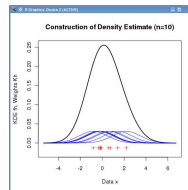
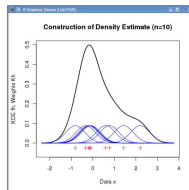
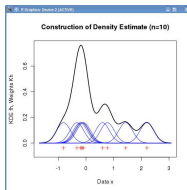
construction of the KDE →  SPMkdeconstruct-Sliders.R



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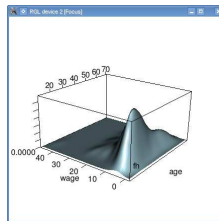
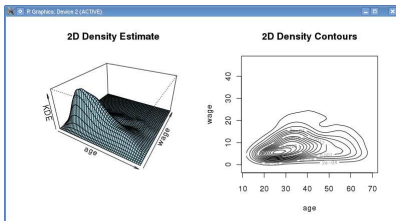
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Kernel Density Estimation – 2D


→ 3D plots using rgl

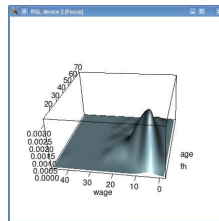
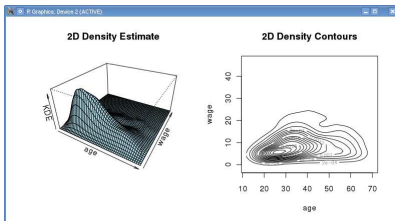
static vs. rotation in 3D →  SPMdensity2D-RGL.R



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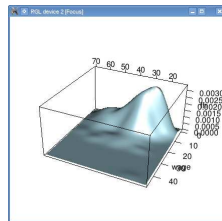
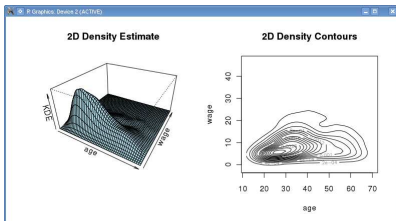
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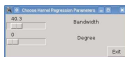
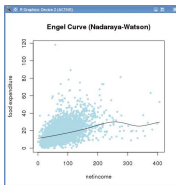
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Nonparametric Regression

- kernel regression
- different other smoothing methods

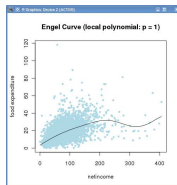
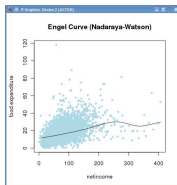
Nadaraya-Watson and local polynomial →  SPMkernelregression-Sliders.R



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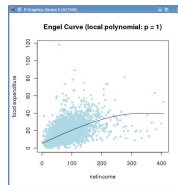
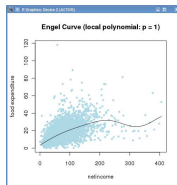
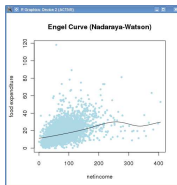
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